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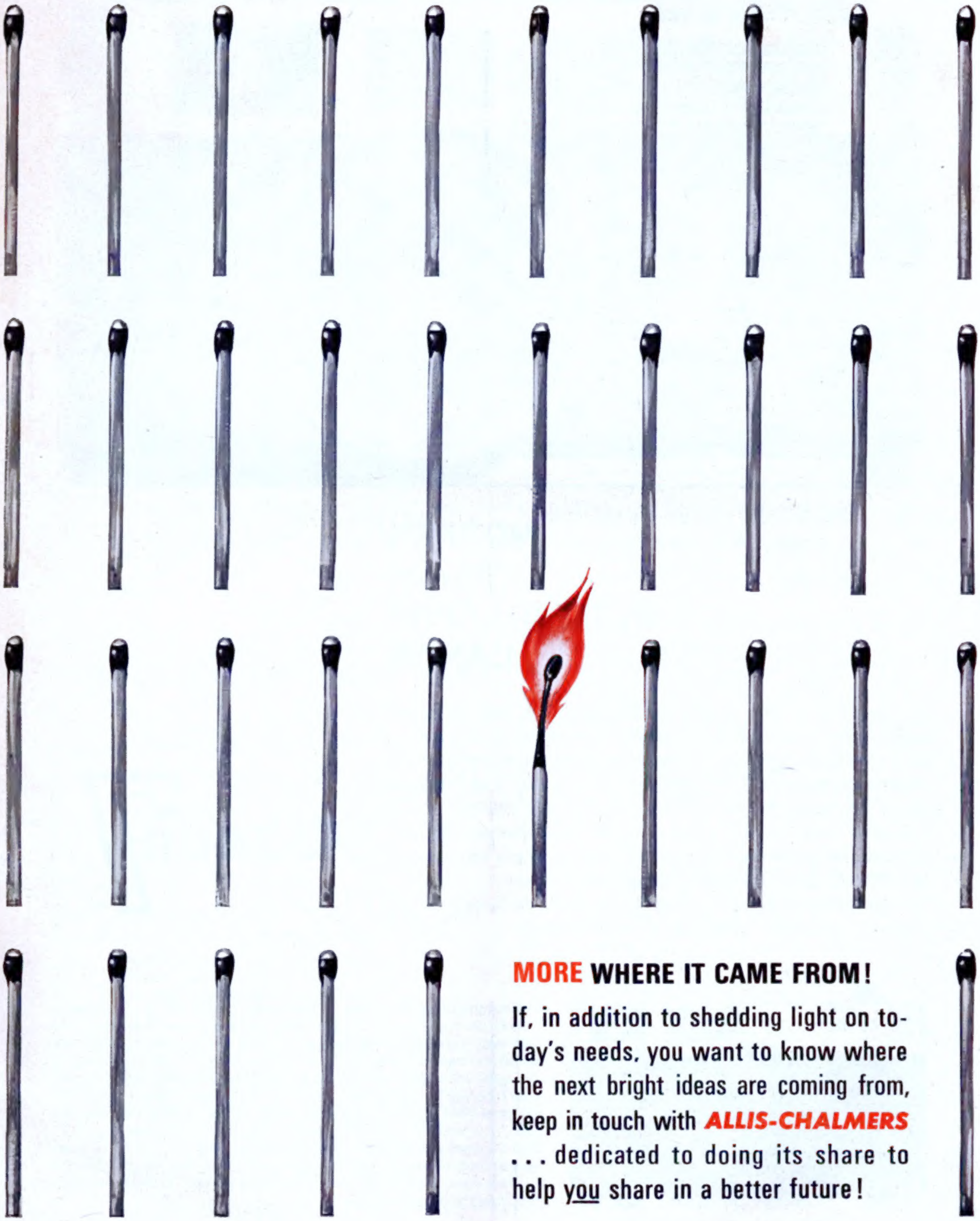

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LETTERS TO THE EDITORS

WAR, RELIGION, GREECE AND MRS. HOLLISTER

THE WAR IN VIETNAM

Sirs:

It is rather ironic, and a sad reflection of the times, and above all of your own state of mind, that in a magazine that dares call itself LIFE, you show the pictures you do in your February 25 issue, of the Vietnamese war ("Stark Color of Bitter Jungle War in Vietnam").

If you want to disgust people thoroughly with America, just keep on publishing garish pictures of unnecessary wars, bragging about the Communists you and your friends kill as if they were less than jack rabbits.

After this LIFE performance, I and tens of thousands of people throughout the world would rather see your whole staff lined up there on the field than those poor peasants.

JEAN DAVIDSON
Former *France Presse*
White House Correspondent 1945–53
Saché, France

Sirs:

I was shocked to see the final picture.

Whatever the merits of your photographer may be, he is desperately lacking in good taste.

GÜNTER BARTEL
Wiesbaden, West Germany

Sirs:

I read with sadness your photographic resumé of the current situation in South Vietnam.

Every day more and more people are dying: Americans, Vietnamese, Viet Cong; every day more villages are gutted, more rice fields destroyed, more human misery produced. The brutal evidence of the napalm bombings is a repetition of the same hazardous tactics employed during the Algerian and Indo-Chinese wars. When I visited Mr. Diem in 1952 at the Maryknoll Seminary, Ossining, N.Y., where he sought refuge, he condemned the use of napalm bombs as unnecessarily destructive and cruel. At that time, he urged me to intervene against their use because he considered them materially and psychologically unsound, killing without discretion innocent women and children. Today these methods are praised.

I wish to emphasize again that the Vietnamese war is essentially a political war. It will not be won by military tactics or ultramodern weapons. To fight this battle a new leadership is urgently needed at Saigon—a government composed of dynamic, nationalist leaders devoted to the public cause. Only when a good and honest government based on social and political reforms replaces the corrupt, mediocre dictatorship presently in power can the Vietnamese people have the will and the reason to push Communism from their land. Until that change takes place the American people are simply wasting their money, their materials and their blood. It is profoundly regrettable that the well-intentioned help of the U.S. is placed in the hands of a feudal autocrat; it is inhuman to ask the valiant Vietnamese soldiers to give up their lives for the sole purpose of consolidating the power of a hated tyrant.

TRAN VAN TUNG
Paris, France

▶ Mr. Tran Van Tung is a leader of the Vietnamese Democratic party, now in exile.—ED.

Sirs:

As a long-time regular reader of your so appreciated LIFE International, I congratulate you for your report on the war in Vietnam.

Mao's China claims all of Southeast Asia and perhaps one day will claim the whole Asian continent. The Vietnamese government must be saved from a Communist dictatorship.

And we must not forget those brave American and Vietnamese soldiers who gave up their lives against the Red terrorists.

SURENDRA KUMAR KARSANBHAI
Lisbon, Portugal

H. B. STEPHENS' LETTER

Sirs:

I imagine LIFE will get a lot of reaction to reader H. B. Stephens' letter on "Christianity's origins" in the February 11 issue. Although I consider the historical part of it as pure nonsense, I don't want to confute it here. It is hardly necessary to point out that the overwhelming majority of serious historians, be they Christians or not, grant the historical existence of Christ. What cannot be proved is the fact that He is the son of God and the fact that God himself exists. If such a proof were possible, no faith would be necessary.

But what beats me is how far some people will go to find an excuse to deny the existence of God and of life after death. *Why* do these people hate the idea of such a life? Just why do they want to cease completely with death?

For Mr. Stephens' almost incredible misinformed reasoning is not aimed, as it may seem to be, at the elimination of Christ as a historical person, but at the elimination of God.

Now I should like to ask Mr. Stephens if he can prove that God does *not* exist.

Then I should like to ask him just how gullible he thinks the millions of Christians are who believe in the existence of God, of Christ, of the Holy Ghost and in life after death.

And, finally, would he please put two and two together?

Or does he prefer to sit on a time bomb, due to explode at his death? Because then he will *know*—and face the truth, and the music, too.

MARTIN KRIPP
Merano, Italy

Sirs:

H. B. Stephens writes that the name Christ is derived from the Greek "christos" which is a translation of the Hebrew "messiah" which, he says, means savior or redeemer. It means nothing of the sort. Messiah means simply The Anointed and was the title held by the kings of Israel who were anointed with oil on ascending the throne.

Every nation harks back to its golden age and Israel had its golden age under the great messiahs, Saul, David and Solomon. Nothing could have been more natural than that the Jews, during the Babylonian captivity, should think nostalgically back to the age of the kings and yearn for the rebirth of Israel under a new messiah—and from the wish it was a step to the prophecy.

Mr. Stephens denies the historical existence of Jesus, but somehow it's easier to believe that Christ existed than that He was invented.

K. SEMMELMANN
Oslo, Sweden

Sirs:

Mr. Stephens' belief that "there is not a scrap of evidence to support the Christian belief that Christ was historical" cannot be sustained against the written evidence, apart from the Bible of course, of early non-Christian and Christian historians and writers who refer to Him as follows:

Tacitus: *Annals* 15, Chapter 44. Suetonius: *Lives of the Caesars*—Claudius, Ch. 25; Nero, Ch. 16; Domitian, Ch. 12. Pliny: *Letters to Trajan*, Epistle 10, Celcus: *The True Word*. Josephus: *Antiquities* 18, Ch. 3. Lucian: *Philopatria; Life of Peregrinus*. Minucius Felix: *Dialogues*, Ch. 10. *Corpus Inscriptionum Latinarum* 4,679.

These refer to His existence as a Man who played a leading part in the history of His time, and there must be many more such references could they be brought to light.

The claim is also made, incorrectly, that "the Jewish religion, in turn, was an outgrowth of the ancient Sumerian religion of Babylonia, where, for a time in the early Sixth Century B.C. the Jews were deported by the Chaldeans." The actual facts are that the Babylonians were the Aramaic branch of the Semitic stock and their worship was exclusively pagan, being directed towards a variety of divinities including Bel, the chief; Merodach the son of Ea, the god of the Abyss; Isshtar, the Babylonian Venus and lady of the battles; and Samas the god of the Sun, among others. Far from these gods and goddesses inspiring the Jews, they had the reverse effect and largely corrupted their monotheistic faith, to which the Jews were obliged to repent and return.

Gnosticism reputedly began to appear during the days of the Apostles, one form of it being expounded by one Simon Magus, a magician, seemingly, by his name. It took two forms mainly, the earlier of which denied the divinity of Christ and sought a purely intellectual approach to Heaven through an esoteric knowledge of Scripture, and envisaging a kind of many-storied intellectual edifice of existences, in rising and ascending orders of planes of knowledge between humanity on earth and Heaven. A century or so after Christ, these doctrines became even more elaborate with the Docetae, who were Gnostics who professed Christianity but denied the Incarnation, as the earlier Gnostics had denied His divinity.

Thus, in the space of a century or so, Gnosticism began by denying the divinity of Christ and then moved on to denying His humanity. Hence, the New Testament could not possibly have been written by Gnostics as it completely contradicts both these beliefs, and it is exclusively concerned with the teaching and acts of those followers of Christ who had no part or sympathy with Gnosticism in any shape or form.

MICHAEL BENKERT
London, England

Sirs:

Does Mr. Stephens know that the authenticity of all four gospels has been accepted for centuries by most reputable Bible scholars? that Christ was to be born of a virgin or maiden, according to the very Old Testament prophecies he appropriates? that Josephus mentions Christ? and that thousands of Christians died in Roman arenas and St. Paul barnstormed the Roman Empire before Christianity was "invented"?

WARD S. MILLER
Helsinki, Finland

MRS. HOLLISTER'S OBSESSION

Sirs:

After reading about the unselfish efforts of Mrs. Hollister (LIFE International, Dec. 31, 1962) I was more than excited to know that someone is sincerely devoted to bringing into existence an institution for religious and international understanding.

My only disappointment while reading the article was that of Christian leaders failing to support Mrs. Hollister's noble endeavor. If such trite issues as the design of a building and Christendom's fear of a "syncretic" encounter, then maybe her time and enthusiasm are misspent on the Christians.

If the leaders of the great Eastern religions endorse Mrs. Hollister's zealous work, where is the leadership of the Christian faiths? Did it die with Christ?

Success, strength and love to Mrs. Hollister. I am delighted to know that a person with her qualities is living in the 20th Century and in America.

JOHN P. TROTTA
Peace Corps Volunteer
Marawi City, Philippines

Sirs:

It is surprising that in the proposed "Temple of Understanding," Zoroastrianism, one of the world's most ancient living religions, has been given no place.

Zoroaster was the first prophet who proclaimed the need for adopting the good and abstaining from evil. Judaism, Christianity and Islam all owe a great debt to Zoroastrianism.

I consider the Temple of Understanding to be incomplete without the seventh wing added to it.

S. A. NENTIN
Bombay, India

Sirs:

May I take the liberty to barge through your esteemed columns to correct two points mentioned in your excellent article.

Prime Minister Pandit Nehru does not reside in a PALACE and the Sikh guards outside the Prime Minister's residence do not, to the best of my knowledge, arm themselves with gold swords.

AKHEY SINGH
Lakhimpur, India

THE SEA (CONTINUED)

Sir:

I wish to congratulate you on your most excellent issue of LIFE International (Jan. 28) on "The Sea." We at the Fleet Sonar School, who have a responsibility to provide young sailors and junior officers with an understanding of this complicated environment in which we work, are always on the lookout for better ways to bring this about.

We feel that this issue presents, in an unsurpassed fashion, a simple but thorough approach to this problem. In addition, many of us find it difficult to acquaint our friends and families with the importance, if not the urgency, of the work we have before us. This issue of your magazine indicated that you

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R. J. KENDALL
Commander, U.S. Navy
Training Officer

Key West, Florida

THE MIRACLE OF GREECE

Sirs:

Congratulations on the first instalment of "The Miracle of Greece" (LIFE International, March 11).

D. W. BLANDFORD
Editor *Acta Diurna*

The Orbilian Society
Trinity School
Croydon, England

Sirs:

I wish to congratulate you on your very good article on ancient Greece.

However, I have to point out an error. You mention that ". . . the best Athena could do for her doomed protégé Hector was to have him confront Achilles and die like a hero, rather than fall in cowardly flight."

It should be noted that in the *Iliad*, verses 226–305, Athena did not protect Hector but, on the contrary, induced him into error since Achilles was her protégé. As a matter of fact, throughout the whole *Iliad* it is evident that Athena was anti-Trojan; this of course was because Paris preferred Aphrodite.

A. SYNADINO

Vaucresson, France

Sirs:

Here again you present a masterpiece of "strategy and constructiveness" to put before a reading public the timely subject of man's position in the scheme of life processes. It bites deep without offending too greatly the sensitive theistic uncertainties about man, and yet awakens the more liberated type of reader to man's "reality" in the scheme of things.

WILLIAM PULLEY

Hamburg, West Germany

ELEANOR ROOSEVELT

Sirs:

Please convey my thanks to Robert Wallace for his concise, erudite, honest and moving tribute to the late Mrs. Roosevelt (LIFE International, Dec. 3, 1962).

That one column is one of the finest pieces of prose I have read—proving what many have said before—when used in its simplest form English as a language is without equal as a medium of expression of thought.

G. BURROW

Johannesburg, South Africa

THE LUMINOUS LAND

Sirs:

In the LIFE International issue of November 19, 1962, on page 55, you publish a photo of the Monterey Peninsula, showing the delicate pink iceplant.

I would appreciate it very much if you could write me the botanical name of this plant and the length of flowering period.

D. BROUWER

Brisbane, Australia

▶ The botanical name of the iceplant is *mesembryanthemum crystallinum*, and the plant flowers all summer outdoors.—ED.

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SPECIAL REPORT

The Kids Have All the Loot

In financial crisis the only way to balance the family budget is to waylay the one who has the dough.

by ROBERT PAUL SMITH

This is Smith's Law of Allowances: an allowance is a sum of money freely given to a child to purchase anything which under normal circumstances his parents would in no way allow him to buy.

Allowances have become Big Business in the U.S. Because of the cupidity of the kids and the competitiveness and blockheadedness of us parents, more and more of America's wealth is pouring into grimy pockets where it nestles alongside four marbles, a Scout knife with two broken blades, six feet of fishing line, a dead frog and a matchbook from Harold's Club in Reno, Nevada.

Some years ago someone came up with the statement that about 70% of the wealth in our republic was controlled by women. No one ever questioned that statistic because, after all, who knew? Well I hereby question it in favor of a statistic of my own. The fact is that at least 50% of the cash in the country today is ungainfully employed in the piggy banks, dime banks, and strongboxes of American children. I have, from time to time, succeeded in putting the bite on my offspring (by offering the house we live in as security), and I can testify that at any given moment I can raise, in cash, up to $75—and counting bonds, up to $300.

Kids are nuts about money, which they will beg, borrow or steal, but rarely work for.

Doing research on kids' allowances is a little like checking the security record of J. Edgar Hoover. No kid with a grain of sense will talk about his income to a stranger or even discuss it with another kid. Each one thinks privately he has hit a parental maximum—and if word should get back home that he's getting more than the going rate, financial disaster looms. Parents, being what they are, will pull that old line: "I don't care what Tracy Kalbfleisch's father does! In *my* house . . ."

The one time they don't talk

So the kids close up. Parents seem willing enough to talk, but just like in the Kinsey Report, they lie outrageously. The neighbors can't tell the truth about their kids and money any more than they can about their kids and homework, kids and chores or kids and bedtime.

About the best you can figure is that the take varies from one dollar a week up to fifty, depending on the community, the relative strength of the kids and the adults, the social level, and so on.

One fact emerges with clarity. Nobody in the U.S. has any idea what the allowance pays for. It ordinarily does not pay for lunch, because if the kid is getting an allowance for lunch money it's always earmarked separately, and usually there's even some left over. It does not pay for school supplies, haircuts or bobby sox.

No matter how much allowance is paid out, every time a financial crisis crops up you will find your junior relations putting the arm on you for a few bob. All over the country, at any given moment, there are little family groups trying to find out what ever happened to this week's allowance. Nobody has ever found out.

One reason for all the confusion about where the money goes is that the place where it goes changes as the recipient grows up. Small kids think it a day shot to hell if they fail to spend their allowance in the first free two hours. One of my boys once—showing the temperance and sobriety of his sire—shot the whole boodle on balloons, which he then filled with water and put on the street, waiting for cars to pass by and squish them.

A little later kids get so tight-fisted they squeak. My nephew had a great dodge. The fifty cents being deposited in his hot little hand, he turned instanter to his bank and deposited same therein. The rest of the week he could be heard giving forth piteous moans to force a little more money out of his parents.

It's that bank dodge that works the best. You deliver yourself of a long screed about the value of savings. Great, says the kid. I will save my money. After a while he's got enough to balance the Luxembourg budget, and he stands in need—doesn't every kid?—of a player piano or a new fielder's mitt. Does he buy it? Never; he asks the old man for it. "You tole me to *save* my money," he cries, and you wonder why that's the only thing you tole him that he ever remembered.

In my day we could save our cash for something we needed, and then we'd be lucky if we were allowed to keep the prize after we bought it. As a young whelp, I eschewed Tootsie Rolls and jawbreakers for months, saving my pitiful pennies for a BB gun. This same I purchased—and my old lady took it away from me without an instant's hesitation, children in those days having no legal rights.

Recently, on the other hand, a kid I know squirreled away his allowances, birthday presents, Christmas presents, tips from Aunt, Uncle and Grandma, and went out one fine day and bought a flivver for 150 bucks while his parents wailed and wrung their hands. They didn't take it away from him because, like me, they're afraid of their kids.

In our house allowance day is one of the more piteous sights of the century. My spouse and I painfully assemble our pennies, quarters and frayed dollar bills to give the kids what they regard as their weekly birthright. They are inexorable. Twenty-seven cents is twenty-seven cents to them, and you can just beat it with that quarter.

On and on the money flows from parent to child, in the large economy size. A tiny trickle flows back from the children into circulation for gasoline, bubble gum, and six-toned shoes. The rest? Well, you've heard of Fort Knox. Take a look at Fort Adolescent. These kids are loaded.

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LIFE INTERNATIONAL
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New travails of De Gaulle

UNREST SWEEPS FRANCE

VOICE OF THE PEOPLE. Striking miners' wives, 1,500 strong, demonstrate in Lens, singing, "We'll stay with our husbands till the victory," and occasionally crying out, "Charlie, some dough!"

SOUTIEN DE
FEMMES
ES DE

What price glory? France discovers that it's

AN ARMY WITH BANNERS. Mass meeting of miners at Forbach demands rise in average $4-per-day wage, shortening of 48-hour week, longer vacations.

by CURTIS PRENDERGAST
TIME-LIFE Bureau Chief in Paris

There was no mistaking it. The prevailing French mood was cockiness after Charles de Gaulle shut the door on the British at Brussels. France need not worry about the uproar in the other Common Market capitals or in London, Gaullists claimed, because the French government was the strongest in Western Europe. One simply had to look around to see it. France faced no *apertura a sinistra* problems as did Italy, no possible election upheaval as did harassed Britain, no damaging struggle for succession to the chancellorship as did West Germany. One senior French cabinet minister, contemplating the view from the splendor of his tapestry-paneled office, suggested that what was needed in London was a dose of the economic medicine taken by Paris in the late 1950s—deflation and devaluation of the currency—before Britain would be healthy enough to hold its own in the Europe of the 1960s. Lecturing the British in comportment was something new in France, but the French were accustoming themselves to it easily.

But only a few weeks later De Gaulle's France was in embarrassing economic trouble of its own. It was still Fifth Republic France but the headlines read the way they did in the evil old Fourth. Strikes had shut the nationalized coal and iron mines, cut gas and electricity service to factories, office buildings and schools, stalled the railways and the Métro lines. De Gaulle's own authority was being directly challenged. The General broke his Sunday at home in Colombey-les-deux-Eglises to sign personally a decree authorizing requisition of the miners—sending them down to

expensive

the pits under armed guard. Nothing happened except a spread of the strike and spreading sympathy for the miners among the French public, the whole French press, an uncomfortable number of Gaullist deputies, part of De Gaulle's own cabinet and all the Catholic clergy in the affected regions.

De Gaulle, a devout churchgoer, was particularly bothered by the bishops' stand. "He's a dolt," De Gaulle murmured sourly when one prelate's name came up at cabinet meeting. If, as was reported, De Gaulle had remarked, "The worse things get, the more they have need for me," it was not quite true this time. Unenforceable, the requisition decree was forgotten without being withdrawn and the wages problem turned over to three "Wise Men," although the wisest decision of all was De Gaulle's, to forgo haranguing the strikers on TV and thus building himself still further into impossible positions.

CONTINUED

HOME, SWEET HOME. In the drab mining town of Courrières, striker Bernard Burelet says: "We won't yield."

A BOY'S ERRAND. His family out of fuel, 10-year-old Francis Daufut seeks wood on Vauquin's slag heap.

The coal miners' strike went a full five weeks—longer though not so paralyzing in its effect as the general strike of 1953—before agreement was reached. The Wise Men's report, which recommended a wage boost above anything the government had previously offered, gave De Gaulle an exit from the impasse. But in the process France was locked into a new spiral of rising wages and rising prices as other unions began cranking up wage demands of their own. Farmers' unions announced that if industrial prices were going up, farm prices must too. The Paris Bourse, that standard hedge against a weak franc, began to firm up. The financial press began calculating the budgetary implications. One thing was certain: most if not all the benefit of Gaullist devaluation of the currency in 1958 was now lost.

Grèves de prospérité—"prosperity strikes"—one Gaullist deputy called them. In a sense they were. The striking miners were up to their ears in hock to appliance stores for television sets, washing machines, refrigerators and other signs of affluence in a France rapidly Americanizing itself. To present their wage demands, the miners did not march on Paris; they drove down in new Renaults, Simcas, Peugeots. The great welcome given them by a Communist mayor on the outskirts of Paris featured free parking space. But the strikes showed that if Frenchmen appreciated the political stability which had helped prosperity along, they were not willing to extend their gratitude eternally. As one of three miners' wives who went to the Elysée Palace to petition De Gaulle remarked, in a new referendum the results might not be so overwhelmingly Gaullist as before. "Lorraine voted 90 per cent, *oui*. But now . . ." A public opinion poll published in *France-Soir* just as the mine strike ended supported the woman's judgment. Taken between March 22 and April 1 by the Institut Français de l'Opinion Publique, the poll asked, "Are you satisfied with General de Gaulle as President of the Republic?" Only 42% replied "Yes"; 40% said "No" and 18% said nothing. A few weeks before, 47% had reported satisfaction.

The Gaullist image was, to some extent, a casualty of De Gaulle's own oratory, invoked regularly on an unvarying theme: Frenchmen, you never had it so good. But De Gaulle could almost be forgiven the sin of pride, since for five years everything had worked out almost precisely as he had calculated. He unloaded the Algerian war, broke the French settlers' rebellion and tamed a mutinous army. He had amended the French Constitution his way, to give France direct presidential elections, then won a massive and surprising parliamentary election victory (a surprise even to De Gaulle, some associates now slyly say). He capped a policy of German reconciliation with a treaty that offered some counter, at least, to America's influence across the Rhine. He imposed his will on his Common Market partners and used his minuscule nuclear force—hardly off the drawing boards—to bring recognition from the United States, as he had judged it would. Targeted, in a manner of speaking, more on Washington than Moscow, his still-embryonic force has constrained the U.S. government to cede before him at almost every turn. The three-power nuclear "directoire" that De Gaulle sought in his September 1958 letter to Eisenhower has, in effect, been tacitly admitted. Dean Rusk journeyed to Paris last summer to suggest eventual coordination of French and American nuclear forces—an overture which De Gaulle's foreign minister had the pleasure of terming "premature." Nassau, which offered France Polaris missiles on the same terms granted the U.K., took the initiative still further in De Gaulle's direction.

It goes without saying (although the impression sometimes seems to be otherwise outside of France) that none of all this damaged De Gaulle's stature with the French. The view from across the border tends to regard De Gaulle as Louis XIV in double-breasted charcoal gray, surrounded by sycophants who would be swept away with De Gaulle's disappearance from the scene, decreeing policy that would not survive him either. Over the whole Gaullist regime, of course, hangs the question of succession to De Gaulle. The Fifth Republic's dependence on one man is too obvious to need further discussion here, and most French turn to the more absorbing subject of who after De Gaulle? Here is where every man becomes his own pundit.

Almost rarer than a French politician who has not received the Legion of Honor is a French politician who has not been named as a presidential possibility. As a *Le Monde* editor wrote recently, choosing the candidate to succeed the General has replaced Algeria as the standard Paris dinner-table topic. "Formerly, you asked the person next to you his views on Algeria. Now you inquire if he's not a candidate."

C'EST LA GARE. Railway strikes halt trains and Paris' Gare Saint-Lazare stands silent and all but deserted.

Selling briskly on the newsstands these days is a book by a witty Socialist ex-deputy, Arthur Conte, discussing some names commonly mentioned. Ex-Premier Michel Debré is "our Nixon—even to appearing on television in need of a shave." Present Premier Georges Pompidou, a professor turned banker turned politician, is represented as wanting to get back home as soon as possible. "Born in a family of humble sorts, he is sufficiently master of himself to realize that he is living in a sort of mirage." Another ex-premier, Antoine Pinay, "has the savings bank manner" that pleases the thatch-roof population. Internationalist Jean Monnet is "the wise man who would give us a relief from the hero." But in truth there is no dauphin, even a vice president, and Conte concludes by conceding that everything would depend on electoral combinations. And as usual, much would depend on whether the non-Communist left decides to deal with the Communists. (What local reconciliations emerge in the strike aftermath will be interesting to watch.)

But De Gaulle's disappearance will not mean the end of Gaullist ideas, nor even of the men around him. What is not often appreciated, perhaps not even in France itself, is that under De Gaulle a new breed of politician has got its hands on the levers of government. The Gaullist government has its share of holdover hacks and amateurs without any political base who might win on a Gaullist ticket but not otherwise. (Pompidou was plucked from his bank job to be premier, and did not even offer himself as a candidate in the last election, making him probably the only head of government in all Europe, Khrushchev included, who has never run for office in his life.) But these aside, there is a New Frontierlike breed in power under De Gaulle. They are New Frontier in tactics, at least. They like to be out in front and stay there. They are suave and they tend to be cold. To a man they seem to have read Theodore White's *The Making of the President, 1960* (in French translation) and to have perceived that campaign management, not oratory, wins elections. They know how to use public opinion polls to spot issues. This is something entirely new in French politics. The intermediary, the deputy who used to take the word back from Paris to retail around the café table in the provinces on Sunday afternoons, is losing his function. (In the miners' strike, local union leaders found their membership following developments in Paris on transistor radios faster than they could get it themselves.)

The names like René Pleven, Guy Mollet, Pierre Mendès-France still make the quotable political comment in France, but it is more likely to be a flock of near-unknowns who will make the actual politics in the next regime. These men, now in junior ministries and top administrative posts and in the progressive wing of De Gaulle's UNR-UDT parliamentary group, are Gaullist in the sense that they tend to be impatient with parliamentary prerogatives, regard getting on with the job more important than discussing it. They are Gaullist in their Paris-centered view of European politics, Gaullist in their determination to see France exercising an independent nuclear capacity. They are not anti-American, nor are they overawed by the U.S. They feel they are riding a current in France—and they act it.

But perhaps the Gaullist current has reached its highest point, and must recede. Predictions of this sort are dangerous: events have a maddening habit of proving De Gaulle right in most cases, prescient always. But in two major areas of Gaullist policy, the outlook is for major difficulties.

GLAMOR BY CANDLELIGHT. Strikes of electric power workers darken cities and a beauty parlor resorts to candles.

His plans for European political organization have been stalled, up to now at least. For France to be able to amplify its voice against a European sounding board (the better to be heard in the U.S. or the U.S.S.R.) an organized Europe is required, and so far De Gaulle has not got it. Not his sort. He suffered a sharp setback in failure of the Fouchet Commission talks (named for the then French ambassador to Denmark, now De Gaulle's Minister of Education) which would have added foreign and defense policy coordination to the present close economic relations of the Common Market Six. After many months of increasing French frustration, French Premier Pompidou went to Turin last September in a last attempt to save the scheme. But the main results were pictures of Pompidou and Italian Premier Amintore Fanfani joyriding into the new Mont Blanc Tunnel wearing tin hats. The Fouchet Plan was dead, and as an alternative De Gaulle turned to a modest bilateral arrangement with Adenauer. Whether De Gaulle can extend this pattern with his other neighbors remains to be seen.

De Gaulle had correctly judged that after blowing off their anger at the Brussels breakup, ministers of the other five would resume dealing with Paris. Less than two months later, Netherlands Foreign Minister Joseph Luns, who had talked the roughest, was not quite eating out of De Gaulle's hand, but he was chatting amicably with him after luncheon in The Hague's Huis ten Bosch Palace. The air was clearing. Having imposed a negative decision on the Common Market, De Gaulle was managing to live with the consequences. But whether he could get things done positively his way was another matter. "I think De Gaulle still sees his historical personage in a European suit," a leading architect of European unity remarked a few weeks ago. "But one cut to his own design," he added. And since the British turndown, De Gaulle's Common Market partners have taken up the scissors themselves. Already the French have had to concede to Brussels sentiment to get on with tariff negotiations with the U.S., as the price of preserving a common agricultural policy which benefits chiefly French farmers. France has an agricultural surplus problem almost as burdensome, proportionately, as America's. Europe knows it.

The French nuclear force may likewise be entering a period of diminishing marginal returns. Contrary to what critics claim, it is not overly expensive. The total French defense budget is about $4 billion annually, some 6 to 7% of Gross National Product. The nuclear share of French military spending is only one sixth of the $4 billion total, which will provide by 1965 a force of 50 Mirage IV Mach 2.2 land-based bombers possibly supplemented by nuclear-equipped Etendard naval fighters.

CONTINUED

As the cartoonists view the situation

"Their end of the month complaints—when I'm starting a new era!"

"It does take away a little from the grandeur."

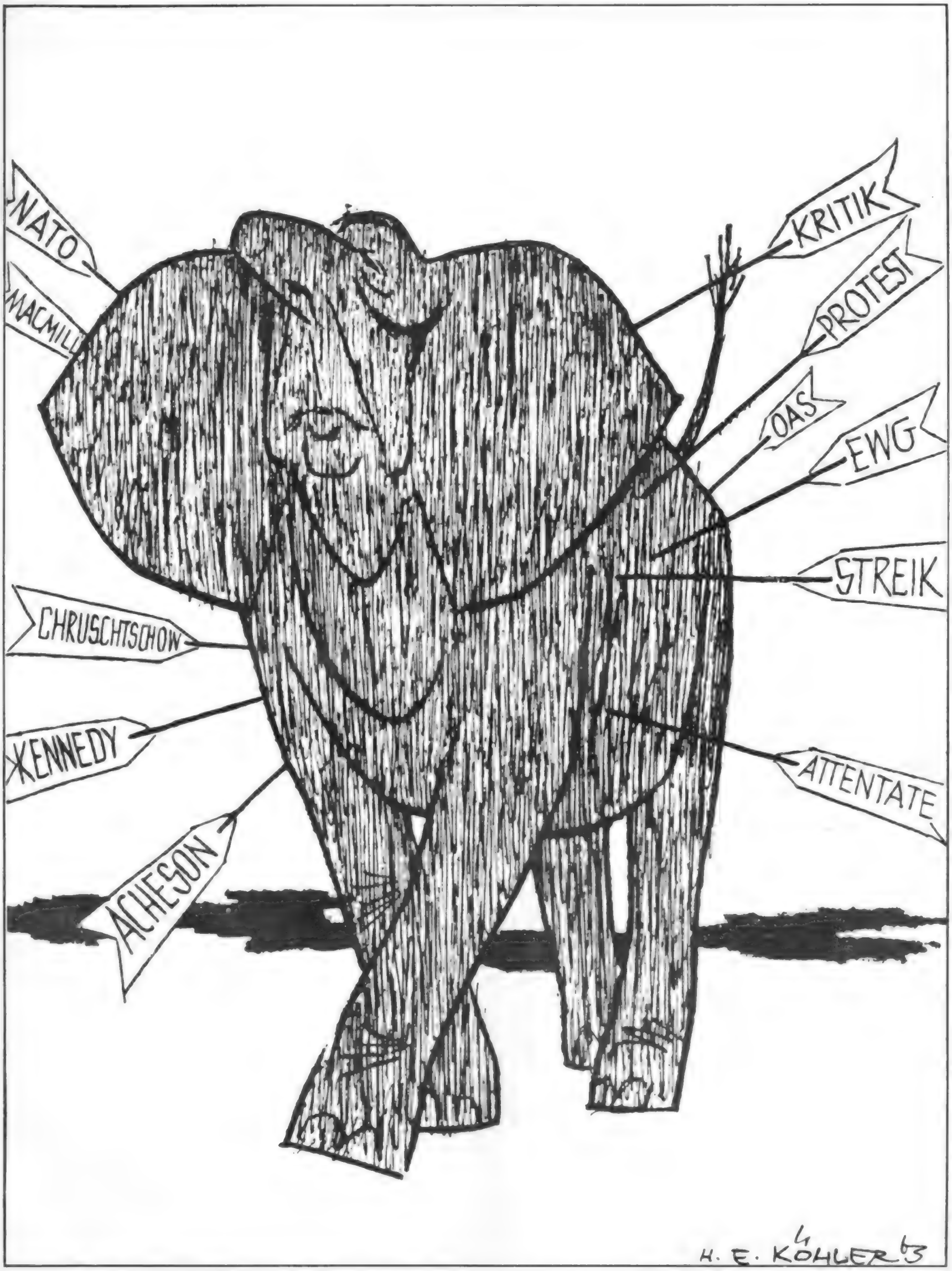
DE GAULLE CONTINUED

They will carry atomic bombs three times the size of the Hiroshima model. British sources estimate current French production at 20 bombs per year. The longer-range plans for the mid-1970s foresee a second-generation force comprising hydrogen-bomb-tipped, submarine-borne missiles. Still under discussion is the intermediate component to fill the hiatus between the first- and second-generation forces. Air-to-ground missiles and military adaptation of the "Concorde" supersonic jet transport (which French and British designers are continuing to work on despite the Common Market rupture) are under consideration.

Now that the force is coming into being—the first Mirage IV squadron may be in service by the end of this year—the question is what further leverage it may have on American planning. By the admission of French nuclear strategists, the *force de frappe*'s objective is to introduce an element of uncertainty into Soviet military calculations; it is not conceived as, nor being constructed as, a full-range weapons system capable of defending France against any eventuality. French air defenses are weak too. When the Algiers generals' *Putsch* broke out two years ago, Paris had to ask other NATO capitals whether their radar screens showed renegade French air force units crossing the Mediterranean from Algerian bases, bound for the *métropole* (they weren't, of course). And the momentum of De Gaulle's own independent course of nuclear action may have carried him beyond a point where American technological assistance could be exchanged for French political commitments—on terms, that is, that the U.S. Congress would agree upon. Interestingly enough, the French now do admit they seriously hoped for a nuclear arrangement with Britain. The subject was broached at a De Gaulle-Harold Macmillan meeting at the Château des Champs in June 1962, if not earlier, and continued until the pre-Nassau rendezvous the two had at Rambouillet in December. Rambouillet proved a wintry ending to the Anglo-French affair. De Gaulle was a thoughtful host and laid on a pheasant shoot for his guest, but while Macmillan bagged 77 birds he could offer De Gaulle no atomic concessions except that he would discuss matters with Kennedy at Nassau. Then followed the Brussels rupture. If the vicissitudes of the multilateral nuclear force proposed at Nassau subsequently have demonstrated that De Gaulle was politically right in going his own way, the technical and fiscal problems involved remain as heavy as before. A French wit summed up De Gaulle's dilemma by sympathizing with his difficulties in combining the welfare-state doctrines of Léon Blum, the military policy of Richelieu and the financial orthodoxy of Poincaré.

The lonely course that De Gaulle has embarked on has nobility and dignity, but is not made any easier by the fact that France is committed everywhere—to North African and black African aid, to paying off French refugees from Algeria, to building a nuclear force that if budgetarily manageable is not cheap, to subsidizing farmers and a host of money-losing nationalized enterprises. The recent wave of strikes was warning that the price of most will be going up. Grandeur is expensive.

ONCE UPON A TIME. Smiles greeted De Gaulle when he visited mines in 1959 and donned helmet and lamp.



COURTESY OF THE FRANKFURTER ALLGEMEINE

A German view: Despite the arrows, an elephantine De Gaulle remains *unbeirrbar*—imperturbable

GRISLY WARNING. "Don't Enter" sign in Italian with a hand-drawn skull and crossbones hangs on door of Zermatt typhoid victim.

Ski Season's Tragic Ending

The best spring snow in years mantled the picture-postcard ski resort of Zermatt, 5,315 feet high on the northern slopes of the Matterhorn, but the figures etched against it were not the usual colorfully attired skiers; they were black-garbed mourners at a funeral. Symbols of death and illness and scenes of hasty farewell were everywhere in the Alpine village, hit by an outbreak of typhoid fever. The funeral was for Mme. Bertha Perren-Aufdenmatten, mother of 13, the first victim to die.

Zermatt takes in $10 million a year from tourists, and townsmen and officials ignored a Zurich doctor's warning that a patient just back from the resort had typhoid; even when a score of villagers and tourists were stricken, officials pooh-poohed talk of an epidemic, and the tourist office pronounced Zermatt's water 99.93% pure. But Swiss army medics, moving in two weeks after the outbreak, chlorinated the water, then found the probable cause: breaks in a sewer pipe and an adjacent water main.

Besides Mme. Perren-Aufdenmatten, two other Zermatters and a British visitor died and at least 350 confirmed or suspected cases in other parts of Switzerland and in eight other countries were traced to recent visitors to Zermatt. Officials finally ordered the village's 56 hotels and pensions shut down and virtually all the 10,000 tourists fled. Though one Zermatt bar displayed a sign showing a platoon of typhoid bacilli skiing down the Matterhorn to "taste the famous tiphus cocktail," it was clear that even in spotless Switzerland typhoid fever was no laughing matter.

SAD RITE. Mourners stand in fresh snow as the body of Mme. Bertha Perren-Aufdenmatten, epidemic's first fatality, is buried.

STRETCHER JOURNEY. A typhoid victim on a litter is transferred from an ambulance to a train to be taken to a hospital in the valley below.

HASTY DEPARTURE. Tourists cutting short their Zermatt stays exchange adieux at trainside with some of the few who were remaining behind.

An exclusive interview with Gamal Abdel Nasser

EGYPT'S TERMS AMONG ARABS

by JAMES BELL
TIME-LIFE *Bureau Chief in Bonn*

CAIRO

The news in San'a and Baghdad, in Damascus and Cairo, is that the ancient mystique of Arab unity has become amorphous fact. Further, the soldiers and "the street," the twin forces which make Middle East politics, have picked the leader. His name is Gamal Abdel Nasser.

In recent weeks the civilian agents of the soldiers and the cacophonous street crowds in Baghdad and Damascus have been arriving in caravan lots at the villa of the United Arab Republic's 45-year-old president in Cairo's Mashiat el Bekri district. There, over innumerable cups of *mazbout* (sweetened coffee) and beside overflowing ashtrays, they have listened to the terms laid down by the "Hero of the Arab World."

For 12 centuries the Semitic Moslems who live in a great and sometimes fertile crescent which reaches from Egypt through Syria and Iraq to Yemen at the tip of the Arabian peninsula have fluctuated between unity and wild disarray. Not since the 16th Century has there been any real cohesion.

Five years ago Syrians, faced with the very real threat of a Communist takeover, convinced Nasser against his better judgment that he should join them in setting up a unitary state. The bitter dissolution of that state three years later dealt Nasser a staggering personal blow. It almost destroyed his image as the new Saladin.

But not quite. When the soldiers and the street made revolution in Yemen last September, in Iraq in February, and in Syria last month, it was Nasser rather than any Yemeni, Iraqi or Syrian around whom they rallied. The three revolutions give Nasser a second chance.

THE AUTHOR. Mr. Bell got to know Nasser during three years as Middle East correspondent for TIME-LIFE.

How does he propose to go about it? To find the answer I went one evening recently through the gate of a closely guarded compound. There, beyond emerald-green lawns bisected by a driveway of scrubbed red brick, stood a brilliantly lighted, two-story, cream-colored modern villa. As soon as I was seated alone in a reception room gunfire broke out under a nearby window. I started but was shortly informed no attempt was being made on the president's life. It was only Abdel Hakim Nasser, 9, giving his super cap gun a workout. "He's the family gangster," sighed a friend.

Presently Nasser, dressed in a pair of gray slacks, an open-neck white shirt and a gray cardigan sweater, came into the room. We shook hands and he plopped himself easily into a large chair, waving me onto a couch. He recalled that it had been a long time since he had seen me. "It was nine years ago this month," I reminded him.

Except for completely gray temples and gray at the top of his head he had changed very little. How much did he weigh now?

"I don't think anyone has asked me since the last time you did. I think it's 85 kilos [187 pounds] and I think I'm still 182 centimeters [six feet] tall."

Where does the Arab world stand at this point of history, following the Yemeni, Iraqi and Syrian revolts? I asked as he lighted a cigaret.

"This is a natural, logical move in the Arab world," he replied, sprawling comfortably, his legs stretched out before him. "Many obstacles have been raised but the Arabs insist on freedom and the right to develop themselves. They want social justice and they also want unity. Three times in the past they've had it."

What were those three times? I asked, explaining that my Arabic history had grown somewhat rusty.

"Before Islam, the Arab world was united. Then it became disunited. After Islam was founded, we were united and then came apart. The third time was when Saladin united us against the Crusaders. We stayed united until the Ottoman invasion."

Would he say that historically the Arabs fluctuated between a unitary state and disunity?

Nasser nodded agreement. "Disunity has always been caused by foreign intervention. When Arabs become too strong, there are always attempts to weaken and divide us and to create disputes amongst us. Now I believe in unity. I learned to appreciate it from my studies of the history of the Mediterranean world. You remember I taught this when I was an instructor at the staff college. When we were united, all Arab states were in a good condition and we had a meaningful place in the world. When we were united we couldn't be defeated. We faced the Crusaders and defeated them in unity. We faced the Tartars and when the armies of Syria and Egypt were united, we defeated them. It has gone on like that in history. Unity is the strength of the Arab countries and it also helps them in their development."

As a result of his recent conferences with Syria and Iraq did he think the Arabs were on the way to new unity?

"Well, I must say unity must have a concrete basis," he said with a slight frown. "In 1958, when the Syrians came to me, I proposed that we form a federation. But the Syrians insisted on unity."

What about now? Did Nasser still prefer federation to a unitary state composed of Egypt, Syria and Iraq?

"We feel that we must have federation because each of the Arab countries has different habits. While we speak the same language and have the same history and culture, we still have different habits."

Would this federation ultimately develop into union?

"Well, we think of federation as unity. You in the United States have a federation. Are you trying to build it into union? We feel that our federation will grow stronger and stronger and serve our needs."

In 1958, he had told the Syrians he felt it would take five years to lay the groundwork for proper union. Did he feel it would take that much time now?

"Remember that from 1958 to 1963 is five years. Five years have passed now. We have tried for unity. We have experimented and we have made errors and we have understood our errors. After the separation from Syria, we held long and intensive study over why the separation came. So you see we actually have a complete lesson."

What conclusions were to be drawn from that study?

"The main reason for lack of success was that we accepted complete union and amalgamation instead of federation and self-government in both states. A second reason was that we made a mistake in liquidating all parties. Now that has been misunderstood. I want to tell you that liquidation of all parties was a Syrian proposal. It was not ours. The liquidation of parties created a vacuum which needed great action to overcome. Remember, we were new to Syria. I had never been there in my life. So we put all types of people—farmers, socialists, workers, landowners, reactionaries—into one organization. We put all these contradictions into one party.

"Well, we learned our lesson and have applied it here in our own organization. What we have now in the U.A.R. is a collective alliance between farmers, workers, intellectuals, national capitalists and soldiers. We exclude only the reactionaries and—

FOR UNITY

THE LEADER. Hero of the Arab World, Nasser keeps physically fit swimming and playing soccer.

and this is important—the Communists. That is what we should have done in Syria. What we should have had in Syria was a front of progressive parties, instead of liquidating all parties indiscriminately."

What will be the policy in the new federation? I asked.

"We will have a front of all progressive parties. We will exclude only the reactionaries and the Communists. We have our Arab Socialist Union here. In Syria and Iraq, there are the Baath, the Arab Nationalists (who are active in Iraq, Syria, Kuwait and Jordan), the Union Socialists and others.

"If you really want to understand our policy read our charter of last May. We said then it was our duty to make a united front collecting all Arab nationalist movements so as to eliminate the contradictions between them when they face the reactionary and Communist parties. Now I believe is the time to put that policy into effect. We may join to us the Algerian Liberation Movement. We hope the Algerian Liberationists can join the Arab Socialists here and the Baath and other progressive parties in the north so we can coordinate the work in all countries."

How did the Syrians and Iraqis feel about this program?

"They agree to all this."

What steps would be taken next?

"First of all we must agree on principles. Then we will give directives to committees. The committees will draw up a constitution and then we'll have a plebiscite."

Won't the governments approve the constitution first?

"Yes, of course, and then there will be the plebiscite."

The plebiscite is the more important?

"Yes, a thing like this must come from the people themselves, not just from their governments."

What makes an Arab country liberated? I asked.

"Well, we never used that phrase," he said with a laugh. "But it has been used. There is no precise definition, but I would say *unity of goal* is the important thing. We now have five nations—Iraq, Syria, the U.A.R., Algeria and Yemen—which have this so they are liberated. They are free, there is no domination by foreign influence, they all want social justice and development and to work for unity."

Is Tunisia a liberated country and if not why not?

"No, it is not a liberated country because it does not agree on unity of Arab countries. It is only for North African unity."

How did he feel about development of U.S. foreign policy *vis-à-vis* the Arab world over the past 10 years?

"Well, the U.S. has changed its attitude," he said, lighting another cigaret. "They now try to understand the Arab world's problems. This is not an easy thing, for an outsider to understand Arab problems. At first the U.S. tried to influence us into joining MEDO [Mediterranean Defense Organization]. Then they tried to influence us into accepting the Baghdad Pact. And at that time it was American policy to side with the monarchies and feudalist countries. They withdrew their help for the Aswan Dam.

"But now there is no attempt to create pressure on us. And so there is no room for clash between the Arabs and the U.S. It's pressures which bring on clashes. Of course, the U.S. still supports some reactionary and feudalist governments. But if there is no pressure, there will be no clash."

He felt that the Kennedy administration understood Arabs better than the late Foster Dulles?

Nasser nodded vigorously.

"Kennedy has tried from the first to understand us and to be realistic when facing the Arab world. Under Dulles we faced blockade and withdrawal of aid and even blocking of our own money. However, it should not be forgotten that the U.S. stood by us in the United Nations during the Suez crisis and that left a good impression."

He and Kennedy have been having an exchange of correspondence. How were they getting on?

"President Kennedy and I are very frank with each other. We don't exchange diplomatic words but express honest and frank opinions. I believe we have built up a confidence in each other."

Going back to internal Egyptian politics, I asked Nasser how he saw local political development over the next 10 to 15 years.

"Well, as I said before, we are now reorganizing our political system. We want to form a broad union which excludes only the feudalists, the corrupt and the Communists. The rest of the country—more than four and a half million voters—will be represented in this front."

Yes, but did he foresee a multiparty system in Egypt in the future?

"Don't make a mistake and think of the Arab Socialist Union as one single party. It is not. A single party only represents a few people or one class. Our organization is called a union. It is really a front representing an alliance of all different groups of people—farmers, workers, intellectuals, national capitalists, soldiers. It is not a party.

"Now there will be contradictions between components of the union. The farmers will think the workers are getting too much and they will ask for just as much. The national capitalists will argue with the intellectuals perhaps. This is because each of the components will represent its own interest."

How will these contradictions be worked out?

"Within the front," he replied. "That doesn't mean in secret. Meetings will be open to the public. But contradictions must be worked out within the front because otherwise they might be exploited by reactionaries and Communists. In each village and provincial council the contradictions will be faced. They will be solved because they will be contradictions between friends, not contradictions between enemies. If there is contradiction between a feudal landlord and a farmer and a worker it is between friends with the same goal."

What are Nasser's chances of success this time? There is danger that if he moves too slowly in giving the soldiers and the street cherished union, pressures on the civilian governments which front for them may become too great. The Baath party in Syria is flexing its muscles. Iraq and Syria could conceivably come together in a bilateral union. This would create a new power bloc within the Arab world and again isolate Egypt.

In spite of all this Nasser displays considerable *sang-froid* in the present political bargaining. He feels that he, more than any other man or party, has the support of Iraq's and Syria's armies and their masses as well. Nasser is thoroughly convinced that neither the armies nor the street crowds will allow their revolution-installed governments to stand against him in any essential matters.

But the Arab world is nothing so much as volatile. The old Arabic legend, about the camel driver having his plans and the camel his might, must be kept in mind. At the moment the plans seem to coincide. But in the Arab world *bukrah* (tomorrow) is something wise men speculate rather than wager on.

COMFORT FOR LOUNGERS A very important aspect of relaxation is checked in one of the ship's lounges

Close look at a big ship

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KNIVES, forks, spoons, glasses, pepper pots, salt cellars, mustard pots, napkins, plates, water jugs, sugar sifters, all must be perfect and in their correct place. The inspection party carries out a check in the first-class restaurant.

NO MATTRESS IS LEFT UNTURNED Cabins come in for close inspection. Coat-hangers in the wardrobe will be checked too – 3½ tons of them in one ship alone.

SPOT CHECK ON MUSHROOMS In the ship's cold store you need a head for figures. 93,000 eggs, 1,215 melons, 11,000lbs. of apples, 40 tons of potatoes. That's a small example of what's taken aboard at the start of a voyage.

WHAT'S COOKING? The head chef, one of the Managers and the Superintendent Purser discuss a new recipe for a tempting dish in the galley. Last year P&O – Orient carried nearly a quarter of a million passengers – that's a lot of mouths to feed.

NEW CORKS FOR OLD A check on the cork of a drinking water jug is carried out in a passenger cabin. Just another example of the company's attention to detail.

PLAYTIME Children are an important concern. Their needs must be catered for – and checked in their own private part of the ship.

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The $100,000,000,000 Year

President Kennedy estimated in January that he would need $4,945,000,000 in foreign-aid funds for the next fiscal year. On April 2 he asked Congress to authorize only $4,525,000,000, the smallest sum he has yet asked for the purpose. The President, who had seen Congress shrink two previous aid requests by about $1 billion each, was painfully aware of growing U.S. disenchantment with the outflow of aid money, which in the 17 years since World War II has totaled almost $100 billion in grants and loans (*see table below*). Kennedy's voluntary $420 million reduction came close to the $500 million that the 10-man Committee to Strengthen the Security of the Free World, appointed by Kennedy and headed by retired General Lucius D. Clay, Republican and fiscal conservative, had said could be cut from the aid program. The committee's report criticized U.S. aid as indiscriminate in the kinds of economic systems it fostered, lax in demanding performance from recipient governments and misguided in giving technical assistance without developing the high-quality manpower necessary to make use of it. The committee argued that both India and Pakistan should continue to be heavy beneficiaries of U.S. aid, said Indonesia should be cut off "unless it puts its internal house in order . . . and refrains from international adventures." It recommended aid to Spain and Portugal be reduced, pointed to Greece, Israel, Nationalist China and the Philippines as countries ready to be phased out of the aid program. But the committee warned that if the cuts "went beyond $500,000,000, that would be a sacrifice of our national interest." President Kennedy's aid message to Congress referred specifically to the Clay report and some saw his action as a maneuver to outflank such extreme foreign-aid foes as Representative Otto E. Passman, chairman of the House Appropriations Committee's Foreign Operations Subcommittee. If so, there was no certainty that it would work. Aware of the budget-cutting temper of Congress, some Kennedy aides felt his lowered estimate was unwise, feared he would now get even less than if he had stood by his original estimates. In any event, fiscal 1964 was certain to be the year the United States' total outlay on foreign aid passed $100 billion.

WHERE THE MONEY WENT

Here is an official listing of U.S. military and economic aid, lumping loans and grants, from July 1, 1945 to June 30, 1962. An asterisk indicates classified military aid which is included in the regional totals.

	Economic	Military (In Millions of Dollars)	Total
EUROPE			
Austria	1,173.8	—	1,173.8
Belgium-Luxembourg	739.5	1,256.4	1,995.9
Denmark	300.3	605.3	905.6
France	5,175.6	4,262.4	9,438.0
West Germany	4,047.5	951.9	4,999.4
Berlin	131.0	—	131.0
Iceland	70.2	—	70.2
Ireland	146.2	—	146.2
Italy	3,463.3	2,292.5	5,755.8
The Netherlands	1,228.6	1,252.8	2,481.4
Norway	349.8	797.0	1,146.8
Poland	522.6	—	522.6
Portugal	152.1	336.6	488.7
Spain	1,173.6	537.7	1,711.3
Sweden	108.9	—	108.9
United Kingdom	7,668.2	1,045.0	8,713.2
Yugoslavia	1,703.0	693.9	2,396.9
Regional[1]	718.4	1,908.6	2,627.0
	$28,872.7	$15,939.8	$44,812.5
FAR EAST			
Burma	95.4	—	95.4
Cambodia	248.6	85.9	334.5
Nationalist China	2,051.6	2,376.7	4,428.3
Hong Kong	30.4	—	30.4
Indo-China Region[2]	825.6	709.6	1,535.2
Indonesia	670.9	—	670.9
Japan	2,660.7	1,033.1	3,693.8
Korea	3,431.4	2,002.2	5,433.6
Laos	291.9	169.8	461.7
Malaya	23.2	—	23.2
Philippines	1,334.4	418.8	1,753.2
Thailand	336.1	417.8	753.9
Viet Nam	1,699.3	742.4	2,441.7
SEATO	1.8	—	1.8
Regional	41.9	461.1	503.0
	$13,743.2	$8,417.3	$22,160.5
MIDDLE EAST & SOUTH ASIA			
Cyprus	16.9	—	16.9
Greece	1,784.8	1,602.8	3,387.6
Iran	732.3	577.9	1,310.2
Iraq	21.6	46.1	67.7
Israel	874.7	3.0	877.7
Jordan	325.2	24.1	349.3
Lebanon	80.4	8.6	89.0
Saudi Arabia	46.6	*	46.6
Syria	75.8	—	75.8
Turkey	1,581.3	2,288.0	3,869.3
U.A.R. (Egypt)	628.6	—	628.6
Yemen	22.9	—	22.9
CENTO	27.4	—	27.4
Afghanistan	216.8	2.8	219.6
Ceylon	79.7	—	79.7
India	3,952.0	—	3,952.0
Nepal	48.4	—	48.4
Pakistan	1,889.6	*	1,889.6
Indus Basin[3]	33.8	—	33.8
Regional	139.4	713.0	852.4
	$12,577.7	$5,266.2	$17,843.9

[1] "Regional" expenditures include multilateral programs in given areas; in Europe "Regional" also includes contributions to NATO.

[2] Aid given before Indo-China was given up by France in 1954.

[3] India, Pakistan and other nations' participation in the Indus River project.

	Economic	Military (In Millions of Dollars)	Total
LATIN AMERICA			
Argentina	596.5	44.0	640.5
Bolivia	254.9	3.5	258.4
Brazil	1,736.8	215.9	1,952.7
Chile	675.6	62.2	737.8
Colombia	360.7	47.8	408.5
Costa Rica	89.1	0.8	89.9
Cuba	41.5	10.6	52.1
Dominican Republic	39.3	6.1	45.4
Ecuador	113.1	25.2	138.3
El Salvador	39.6	1.1	40.7
Guatemala	158.2	4.4	162.6
Haiti	94.6	6.2	100.8
Honduras	43.0	2.3	45.3
Jamaica	8.8	—	8.8
Mexico	760.7	6.2	766.9
Nicaragua	65.1	3.8	68.9
Panama	99.9	0.9	100.8
Paraguay	57.9	1.4	59.3
Peru	387.1	83.6	470.7
Uruguay	58.7	29.5	88.2
Venezuela	220.9	52.9	273.8
West Indies	22.5	—	22.5
British Guiana	3.5	—	3.5
British Honduras	2.4	—	2.4
Surinam	3.4	—	3.4
Regional	262.0	7.4	269.4
	$6,195.5	$616.1	$6,811.6
AFRICA			
Algeria	15.0	—	15.0
Cameroon	15.3	0.3	15.6
Central African Republic	0.2	—	0.2
Chad	0.4	—	0.4
Congo (Brazzaville)	1.3	—	1.3
Congo (Leopoldville)	94.6	—	94.6
Dahomey	5.6	—	5.6
Ethiopia	117.8	67.5	185.3
Gabon	0.5	—	0.5
Ghana	156.5	—	156.5
Guinea	14.3	—	14.3
Ivory Coast	4.6	—	4.6
Kenya	18.5	—	18.5
Liberia	127.2	4.3	131.5
Libya	187.2	4.5	191.7
Malagasy	1.3	—	1.3
Mali	5.1	1.0	6.1
Mauritania	1.6	—	1.6
Morocco	352.0	*	352.0
Niger	3.2	—	3.2
Nigeria	43.6	—	43.6
Rhodesia-Nyasaland	36.1	—	36.1
Ruanda-Urundi	6.1	—	6.1
Senegal	4.6	—	4.6
Sierra Leone	3.5	—	3.5
Somali	27.4	—	27.4
Sudan	65.0	—	65.0
Tanganyika	17.6	—	17.6
Togo	5.8	—	5.8
Tunisia	293.3	*	293.3
Uganda	5.2	—	5.2
Upper Volta	3.2	—	3.2
Zanzibar	0.1	—	0.1
Other French Possessions	6.0	—	6.0
Other Portuguese Possessions	12.8	—	12.8
Other British Possessions	0.9	—	0.9
Regional	11.1	34.3	45.4
	$1,664.7	$112.0	$1,776.6
Nonregional[4]	$3,561.4	$708.0	$4,269.4
Total	$66,615.2	$31,059.5	$97,674.7

[4] Includes international bodies such as the United Nations and the International Labor Organization.

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1/5th. Curaçao Bols
3/10ths. "White Label" Whisky
3/10ths. Cinzano Vermouth, Extra Dry

3rd. PRIZE - "FINN ROSES" COCKTAIL

Barman: Georg Brandtberg - Finland

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1/3rd. Cinzano Vermouth, Extra Dry
1/6th. Apricot Brandy
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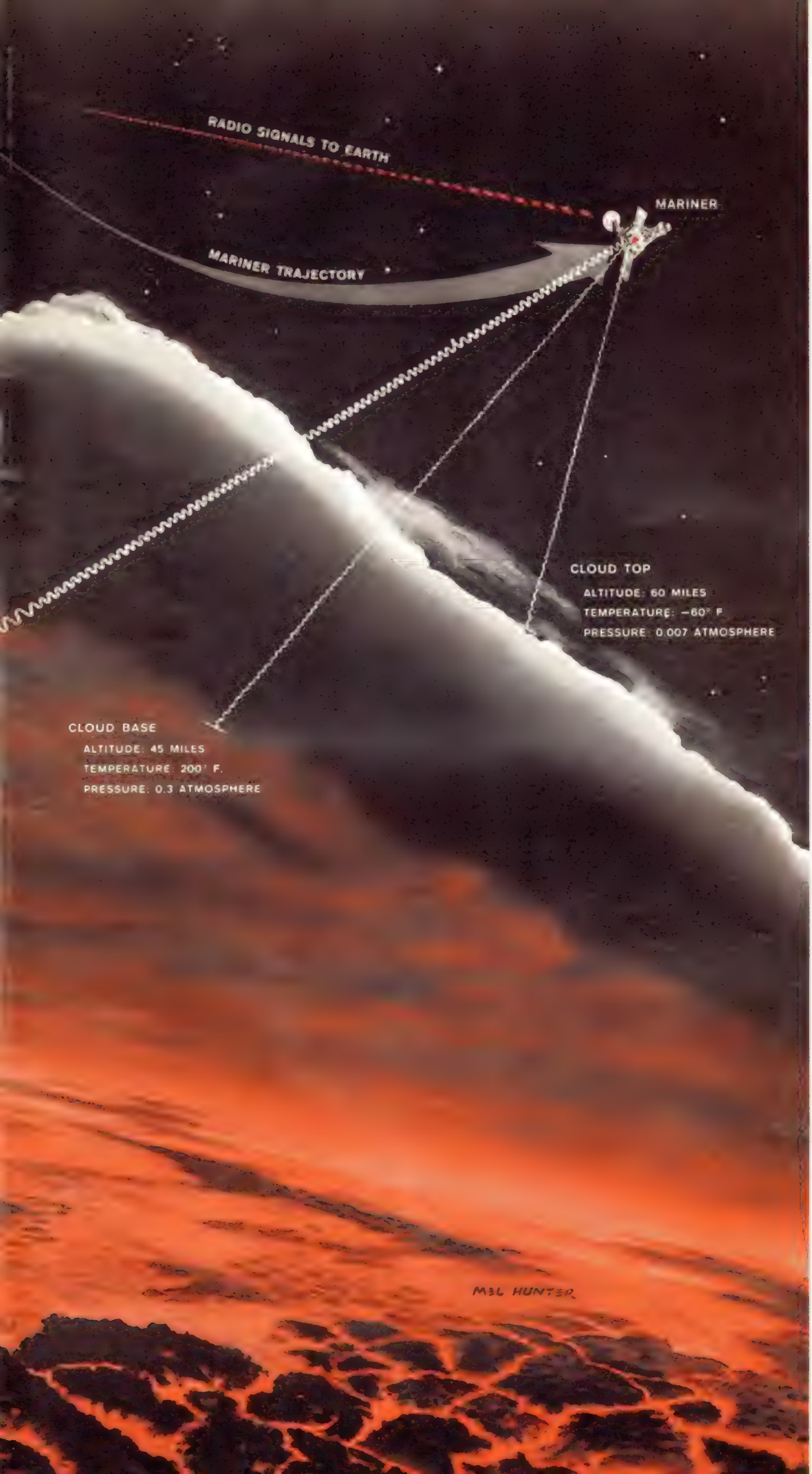


VENUS GLOWS IN MARINER PORTRAIT

This is a landscape of the planet Venus. In the past any such portrayal would have been based on the speculations of science-fiction writers, backed by meager spectrographic and radar readings. But this fiery scene is solidly based on data transmitted across 36 million miles from the U.S. spacecraft Mariner II. Now, after ten weeks of decoding at Caltech's Jet Propulsion Laboratory, where Mariner II was designed and built for NASA, the data can be interpreted.

The surface temperature of Venus, according to Mariner, is about 800° F., about 180° higher than the melting point of lead. This makes it seem highly unlikely that any life exists there. If it did, it would have to live on air that consisted of 10% carbon dioxide and (scientists guess) 90% nitrogen, and under an atmospheric pressure 10 times the pressure at sea level on earth. Venus wears an unbroken cloud cover. The earth's cloud cover ends about 10 miles up, but Venus' begins at 45 miles. At that altitude its atmosphere is about a thousand times as dense as earth's at the same altitude.

As it flew by, Mariner took Venus' temperature by measuring radiation (wavy lines in drawing) at different wavelengths from various points on the surface and in the atmosphere. At one point in the clouds Mariner detected a "cold spot" where the temperature took a 20° drop. Radar from earth had also detected a surface irregularity. Scientists believe both may be due to the presence of a mountain range (*at left, on horizon*).

Scientists also believe that Venus rotates so slowly that it may take 225 earth days from one Venusian sunrise to the next. This means that, like the moon, Venus has a "dark side" turned away from the sun for long periods of time. The moon's dark side is incredibly cold, but scientists think that Venus is so well insulated by its dense cloud cover that the surface is just as hot on the dark side as it is on the side facing the sun.

The ancient Greeks showed man how to use his mind

THE BIRTH OF REASON

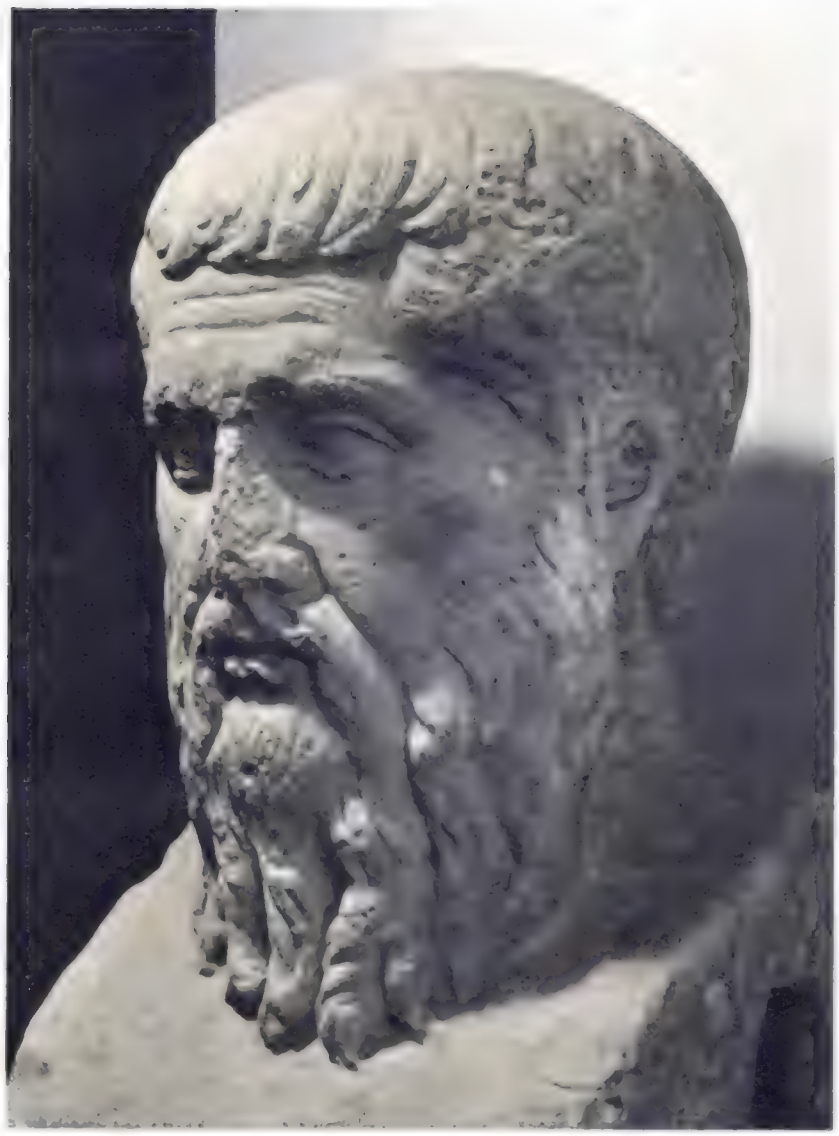
Modern thinkers, striking out alone on what they believe are untrodden paths, nearly always sooner or later encounter the ghost of some ancient Greek returning from the same solitary journey. No line of thought was too much to halt Greek thinkers. Aristotle summed up their simple creed in his famous dictum: "Man by nature desires to know." The discoveries of the ancient Greek philosophers survived two thousand years to mold the minds of modern men. Two of the greatest, Plato and Aristotle (shown here in an ancient marble portrait), between them laid the ground for worlds of thought as far apart as theology and nuclear physics.

In this instalment of LIFE's series on ancient Greece a distinguished scholar describes some of the intellectual insights of the Greeks; and a separate section shows how Greece's dramatists probed the darker recesses of the human soul.

Photographed for LIFE by GJON MILI

By Giorgio de Santillana

The author of the following brief survey of the ancient Greek philosophers and their contributions to the modern world is Professor of the History and Philosophy of Science at M.I.T. His books include The Crime of Galileo *and* The Origins of Scientific Thought.



PLATO

Thales, Greece's earliest known philosopher, was once ridiculed by his friends for being poor. "If you're so smart, why aren't you rich?" he was asked. Thales stopped pondering the essence of Nature long enough to do a little calculating about the coming olive crop. He decided the crop would be excellent, and so he leased all the olive presses he could get his hands on. When the bumper crop came in, he charged outrageous prices for the oil and made a killing.

The story may be apocryphal; but philosopher Thales, who edited the world's first *Farmers' Almanac*, did have a reputation for rustic clairvoyance and the ancient Greek thinkers were quite capable of putting their abstract thoughts to practical use. The Greeks invented complicated engineering machinery and devised a computer for astronomical calculations. They even built a jet steam engine, but it was nothing more than an elaborate toy.

The Greeks preferred to understand Nature rather than exploit it. Their aim was not to "conquer Nature," as we seem bent upon doing, but to reach an understanding of the laws which govern the universe —to make man feel "at home in the world," as Socrates put it. Thus "philosophy" and "science" were one and the same to the Greeks. Their inquisitive minds, from the lofty humanity of Plato to the biological curiosity of Aristotle, roamed freely over creation, restlessly seeking the real reason for things. In this sense the Greeks discovered the life of the mind as we understand it. They taught us how to think; they laid out all the cards and showed us how to play.

We have played that game with such increasing efficiency that our life has changed more in the past 200 years than in the previous ten thousand. Now, poised between immeasurable good and incomprehensible evil, with the power of total destruction in our uncertain grasp, we may well wonder whether we are playing the game with any understanding. Perhaps by re-examining the contributions of the Greek philosophers we can take fresh stock of our own civilization.

Greece's first thinkers, the Ionians of the Sixth Century B.C., were preoccupied with scientific ideas. How does it happen, they asked, that all things change and pass away, and yet that Nature manages to preserve order? The earth teems with variety. Water changes into airy vapor; life turns into dust, and out of that dust plants grow to feed new life. Yet nothing seems to get out of hand. Life goes on and preserves a harmonious balance.

The Ionians decided that some single basic substance must underlie the variety of Nature, and that the flow of change is directed by a cosmic control system. They speculated that the substance and the control system were actually different aspects of the same thing. They named it "*Physis*"—hence our word "physics"—and the Ionians set out to pin down its elusive identity.

Thales, who lived around 600 B.C., came to the conclusion that of the three basic states of matter —solid, fluid and vapor—fluid was the most fundamental and therefore that *Physis* must be water. Anaximenes, his younger fellow citizen, thought that *Physis* was air. Heraclitus, who lived around 500 B.C., declared that it was "an ever-living Fire." Democritus, a late-blooming Ionian who came a century later, reasoned that everything was composed of varying arrangements of an infinite number of particles, which he called indivisibles or atoms.

There was nothing naive about these Ionian philosophers; the search for *Physis* which they began 25 centuries ago is still going on. Not long ago scientists rediscovered that *Physis* was atoms, much as Democritus had concluded. Later it was described as subatomic particles. But there seems to be something that underlies even the subatomic particles and whatever the mysterious something is, it apparently is common to both matter and energy—a concept that recalls the Greeks' speculations. The extraordinary thing is that the Greeks ever thought of looking for *Physis* at all. Even more astonishing, of course, is that their search led them to conclude that Nature, beneath its confused surface, has a clear and simple pattern of law and order; and that the grand design is accessible to the human mind.

There could be a historical reason why the Greeks, rather than someone else, first discovered law and order in Nature. In their city-states they had already sought rational law and order in government and so democracy and philosophy arrived together on the stage of history. Self-government, the Greeks learned, functions smoothly only so long as citizens cooperate in observing due process, maintaining orderly succession and respecting the law— the more spontaneously the better. The Ionians looked for a similar law-abidingness and respect for justice in Nature.

Another Sixth Century Ionian, Anaximander, was the first thinker we know of to offer a logical construction of the universe. He believed that all things obey a built-in rule, that this divine principle of law and order is embodied in the Boundless, which "comprehends the whole and steers all things."

Anaximander's concept of the Boundless was not precise enough for his fellow Ionian, Pythagoras,

TEXT CONTINUED ON PAGE 41

Drama was a sacred rite, a source of wisdom

SHOWPLACE OF THE SPIRIT

For the people of ancient Greece, going to the theater was a towering religious experience, with all the ritualistic grandeur and mystery of a high mass. Plays were produced only once or twice a year on religious holidays, and on those special days the spectators started out before dawn. By the time they climbed to their seats in the vast theater the sky was aglow, and at last under the great spotlight of the rising sun the plays began.

Of the thousands of plays produced in Greece, less than 50 survive today. Playwrights were prophets and teachers of the age and their works dealt with heroic matters: fate, blood guilt, the duel between reason and blind passion.

Each year playwrights submitted their works to the archon (mayor) of Athens, who selected those to be performed on three successive days, and a jury of 10 citizens chose the winners.

The actors—all male—wore awesome masks, fitted with resonant mouthpieces. Between intervals of dialogue, a chorus of 12 to 15 provided a rhythmic commentary. It exulted, mourned, dispensed wisdom, foretold dire events, and kept the whole drama afloat on a surging sea of poetry.

Today the best preserved of all Greek theaters is at Epidaurus (*left*), which seats 14,000 and was built in the Fourth Century B.C. Such theaters were state enterprises. Private donors, as a form of income tax, paid for individual productions, just as they paid for warships. Admission was virtually free and few citizens failed to attend. For to the ancient Greek his theater offered wisdom, inspiration and passionate excitement, and he went to it as if it were a life-giving dynamo to recharge his spirit.

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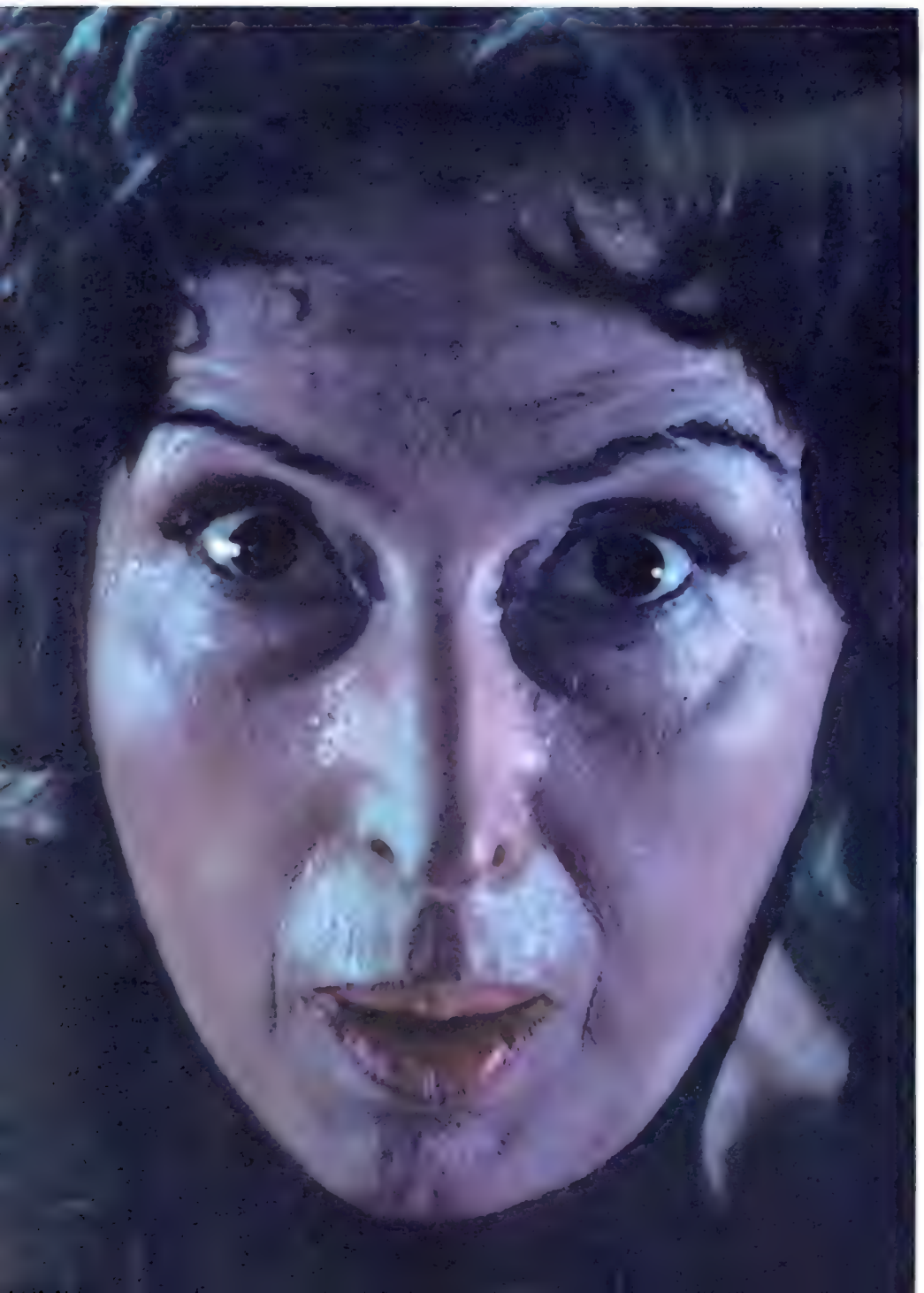

Reason vs. rapture creates savage conflict in Euripides tragedy

'THE BACCHAE'

The Bacchae were female followers of Dionysus, the god of the vine and of drunkenness, excess, and the demoniac element in human beings. The Bacchae worshipped him so fervently that they often slipped into madness. They are the protagonists of Euripides' extraordinary play, *The Bacchae*, which was given last June in the annual Greek summer drama festival at Epidaurus.

Of the three titans of Greek drama—Aeschylus, Sophocles and Euripides—Euripides was the loner; the most probing, most compassionate, and, in a modern sense, the most psychological. In *The Bacchae* he examines the conflict between man's reason and his primitive nature. A psychoanalyst might call it a duel between superego and id.

Early in the play a sensible young king is dismayed because the women of his realm, including his mother, Agave, are roaming the hills in crazed adoration of Dionysus, tearing cattle limb from limb, causing wine to flow from rocks. When he intrudes on their rites, they rend him to pieces and Agave (*above*) displays her son's head on a stick, crazily believing it is a lion's head.

The role of Agave is played by the noted Greek actress, Katina Paxinou, whose face (*far left*) expresses the same mad horror as the small ancient Greek mask above. In a harrowing climax Agave's reason is restored and she realizes her own savagery. Almost in defiance of his age, Euripides seems to conclude life cannot be lived by reason alone. It must respect the claims of man's primitive and subconscious drives.

CONTINUED

In Sophocles' last play and testament, an aged hero

OEDIPUS *at* COLONUS

The best known and most searching of all Greek dramas is Sophocles' *Oedipus Rex*. But the impact of this flawlessly constructed tragedy has stolen attention from a later great play, written by Sophocles as a sequel, *Oedipus at Colonus*. It was given last summer in Athens with Alexis Minotis in the title role (*right*).

The later play takes up the story of King Oedipus 20 years after he has gouged out his eyes and abdicated his throne to atone for his unwitting but unforgivable crime: slaying his father and marrying his own mother. Accompanied by a loving daughter, Antigone, the homeless and blind old monarch stumbles into a holy grove at Colonus, a village near Athens. In the scene shown at right he is recognized and shunned by a band of villagers, who have often heard the horrifying tale of his downfall.

In a remarkable rush of events, Oedipus affirms the worth and dignity of his spirit. He triumphs over arrogant King Creon who comes to take him into custody. He finds sanctuary with King Theseus by convincing him that his presence, even after death, will protect Athens. And like the greatest of Greek heroes, he dies and is miraculously transported to the gods.

Sophocles was nearly 90 when he wrote, as his final work, this glorification of Oedipus that has the tone of a last testament. Its precise significance has kindled many scholarly controversies. It is possible to infer that Oedipus has finally won a state of grace through his long years of suffering. It is also possible to see in it the Greeks' love of a balanced score sheet, proving that in a well-ordered universe good balances evil and harmony prevails. "Be it soon or be it late," says Sophocles in philosophic farewell, "men find sweet turns to bitter, and then once more to love. . . ."

comes to terms with destiny

Horseplay and mockery came after tragedy

THE COMIC RELIEF

The Greeks, in their theater, invented "comic relief." For whenever a group of tragedies was performed, a boisterous comedy relieved the sober mood and rounded out the festival with mirth. Side by side with tragedy, comedy was religious in origin, springing as it did from ancient revels that celebrated the god Dionysus.

No holds were barred in Greek comedies. They exploded with animal spirits, horseplay, vulgarity, license and libel. Gods and heroes were ridiculed. Great rulers and poets were lampooned. Typical characters, like the little statues of comic actors at left, wore masks and flesh-colored tights, stuffed and padded to make them absurd.

The greatest comic writer was Aristophanes, a friend of Plato, whose 40 comedies (only 11 remain) were topical cartoons mocking the life of Athens. Aristophanes took pot shots at Socrates' "thinking school" in *The Clouds;* at the mighty dramas of Aeschylus and Euripides in *The Frogs;* at poets in *The Birds;* at warmongers in *Lysistrata.* Theatrically, his comedies had something in common with the brightest of Gilbert and Sullivan's operettas, the sharpest of Broadway musicals, the bawdiest of burlesque shows. Through the purgative power of laughter, Aristophanes helped the Greek keep his soul in health and his world in balance.

GREECE CONTINUED FROM PAGE 34

one of the liveliest minds of Sixth Century Greece. He was sure he knew the secret soul of the universe. It was Number.

Even a student struggling with elementary math occasionally feels satisfaction in the very neatness of a geometric proof. To the expert, mathematics is a world of stratospheric purity where beautiful and unsuspected relationships continually unfold. Its laws govern the motion of particles in the atom and of planets in the heavens, even the harmonies of music. Numbers, according to Pythagoras, take man by the hand and conduct him unerringly along the paths of reason. "Falsehood," wrote one of his disciples, "can in no way breathe on Number."

Pythagoras was the first to discover the connection between mathematics and music (the perfect mathematical relationship between, for example, string length and the tones of a harp) and he regarded numbers as a heavenly host of perfect entities which rule the world of men. In the words of the Third Century commentator, Hippolytus, "Pythagoras said that the universe produces melody and is put together with harmony, and he first proved the motion of heavenly bodies to be rhythm and melody." The Greeks realized that beauty depends upon right proportion but it was Pythagoras who showed them that the same proportion that forms the structural principle of the universe also rules man and his works. Hence music, sculpture, architecture and science all obey the same law.

Pythagoras and his followers were often considered dreamers by other Greeks. But in their study of proportion and harmony as the powers that hold the universe together, they were led to the discovery of the ellipse, the parabola and the hyperbola—the so-called conic sections—which later became our basic instruments for the mastery of the heavens. Of course the best-known contribution of Pythagoras is the Pythagorean theorem: the square on the hypotenuse of a right triangle equals the sum of the squares on the other two sides. From such beginnings, in hardly more than two centuries, Greek mathematicians raised the imposing edifice of Euclid's geometry.

The triumphs of the Ionians produced a sweeping confidence that man had at last solved the riddle of the universe by the sheer power of his mind. But the poets, and especially the great tragedians of the Fifth Century, were less convinced. Oedipus and many other heroes of Greek drama were doomed in spite of their intelligence. The cosmic thoughts of the Ionians seemed to offer little valuable guidance for the daily conduct of men's lives. Thus, during the Fifth Century, philosophy shifted its focus away from the essence of Nature to the affairs of men.

Athens at the time had become the cosmopolitan capital of a great sea empire and was full of ambitious young men seeking positions of leadership in the democratic government. The prizes went to those who could think decisively and persuade the people with their arguments and speeches. These young persuaders of ancient Athens were greatly influenced by the Sophists, who functioned more as vocational instructors than as philosophers. Although the Sophists claimed to teach excellence, they were really market-oriented intellectuals; the skills which they offered for sale included public speaking, legal quibbling, logic, poetry, good manners, general culture and other short cuts to success in public life. (The speciousness of their approach is reflected in our word "sophistry.")

Their practical pointers on politics inevitably led the Sophists into the larger question of human values. Soon they found themselves propounding doctrines about man's nature that were disturbingly new to the Greeks and to the world. The old Ionians had regarded Truth as bound up in the changeless harmony of Nature. But the urbane and well-traveled Sophists knew better: Truth was whatever men generally considered to be true, and it could vary from place to place and from time to time. Excellence had been regarded by the Greeks as the sum of aristocratic virtues. But the kind of excellence taught by the Sophists was the skills needed for worldly success. The Sophists piously agreed with the Ionians that Justice meant conforming to Nature's laws. But Nature's laws, as the Sophists saw them, were not harmonious; they were the laws of the jungle; and Justice in their hands became the doctrine of Might makes Right.

Despite the apparent cynicism of their teachings and the small intellects of many of their believers, there were Sophists who sincerely searched the world for an ultimate truth only to find that all paths

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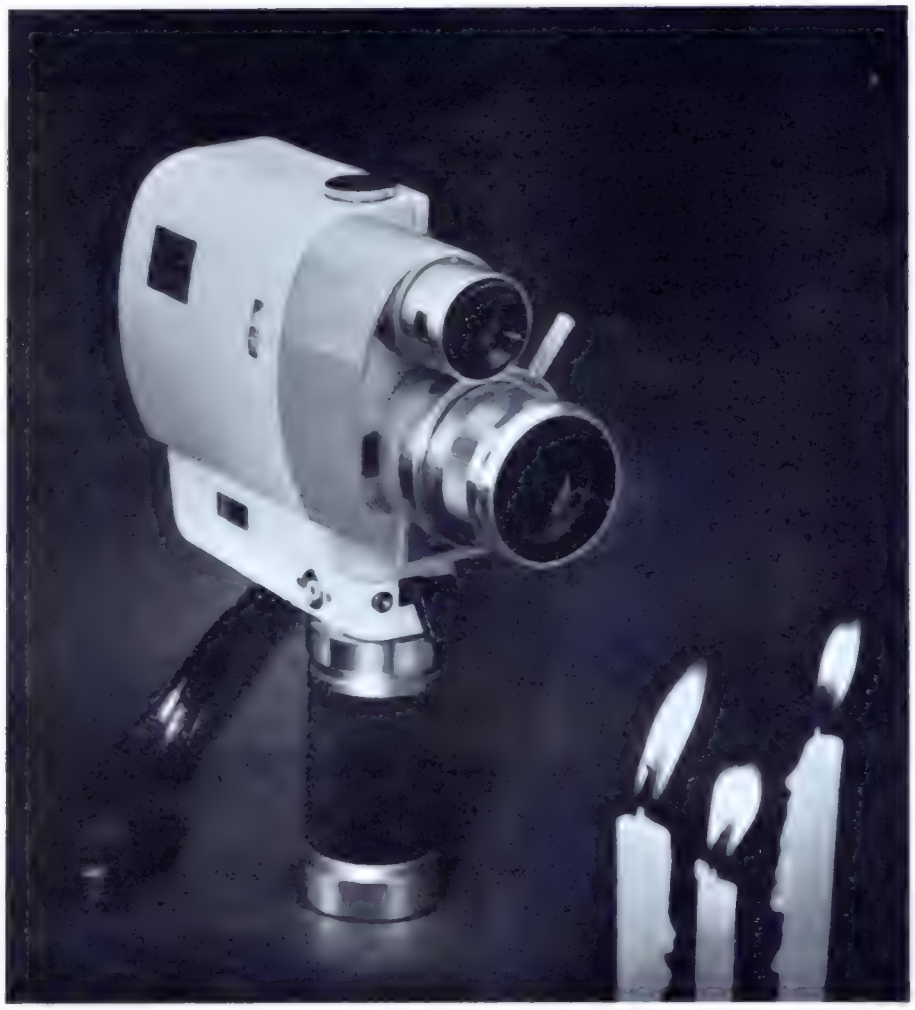

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Surrounded by friends, Socrates accepts the cup of hemlock. Plato's Apology *quotes him: "The hour of departure has arrived, and we go our ways —I to die and you to live. Which is better God only knows."*

GREECE CONTINUED

seemed to lead back to man. In some respects their teachings actually had the liberating effect of encouraging individualism and independent thought.

During that same period there was another man whose views, although profoundly different from the Sophists', rivaled theirs in popularity. His name was Socrates. Squat and ugly, he wore the same garment winter and summer. But his conversation was so brilliant and penetrating that the Greeks forgot all about his appearance whenever they listened to him. In the manner of his life, and especially in the manner of his death, he came as close as any pagan to sainthood. Other thinkers wrote about philosophy; Socrates lived it. Like Pythagoras, he produced no writing but taught by example and personal association. Our knowledge of him and what he said comes mostly from the pen of Plato, who as a youth was one of the swarm of Socrates' followers.

The Socratic method was not to propound theories but to ask questions, and thereby stimulate his listeners to gain insight through their own efforts. Socrates found plenty of people who could talk eloquently on Truth, Excellence and Justice. But whenever he questioned them closely about what they meant none of them seemed to know. The Sophists, who professed to know more than anyone, were his favorite targets. Under his deft prodding, they inevitably tangled themselves in a mass of self-contradictions. For example, the Sophists denied that there was any such natural human attribute as good faith. Socrates made them admit that good faith was indispensable in their scheme of things; without it, he pointed out, there would be no public sense of decency for their clever pupils to exploit in rising to power.

The vision of life held by Socrates was tough-minded; like a good Greek, he approached the problem rationally. In society, he reasoned, the self-interest of the individual must ultimately coincide with the welfare of the whole; and the welfare of the whole must in turn harmonize with the law and order of Nature. The whole hierarchy of the cosmos from top to bottom must strive to act in unison, for no action of any part—no matter what the Sophists claimed—makes sense except in the context of the whole and its ultimate good.

Every man, according to Socrates, has the innate capacity to recognize the good, to cut through the murky world of delusion and double-talk and perceive the unchanging framework of order and

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values. All he needs, Socrates maintained, is the will to work out the truth and the courage to take the plunge, even if he does not possess all the facts. The important thing is to keep moving in the right direction; unless men live by their conception of ultimate truth and, if necessary, die for it, their very souls fall sick. The choice involves risk, Socrates admitted, but it is a worthwhile risk.

After Athens' defeat in the Peloponnesian War, Socrates on several occasions proved that he had the courage of his convictions—that his beliefs held up best under the actual test of life. In 399 B.C. he was finally brought to trial on a trumped-up charge and given the choice between death and flight. Socrates chose to stay in jail and take the fatal cup of hemlock. Death, he told his persecutors, was certainly an indifference to the man of principle; to the philosopher it was perhaps a positive blessing since it would mean the liberation of his soul.

The death of Socrates was one of those supreme moments by which history seems to have been jarred into a new and more purposeful course. Athens went on to produce its two greatest thinkers, Plato and Aristotle.

Plato, Socrates' companion of many years, took the germ of his master's thought and erected a majestic edifice of ideas that did more to shape the Western mind than any other single impulse from ancient Greece. The Peloponnesian War, in which Sparta eventually conquered Athens, had already begun when Plato was born in Athens in 427 B.C. He grew to manhood in an atmosphere of hardship, bitterness and approaching defeat. Coming from a rich and aristocratic family, he had expected to enter public life. But the execution of Socrates completed his disillusionment with a political career. He withdrew to a life of contemplation and founded a school of philosophy called the Academy. There Plato taught and wrote until he died at the age of 80.

The central experience of Plato's life was the judicial murder of Socrates. He regarded the crime as the consequence of a fatal flaw not merely in the institution of democracy but in the moral perceptiveness of every voting citizen. In modern terminology, Plato saw that society's crushing forces—the pressures to conform and to rationalize our behavior—brainwash men even before they have begun to think, robbing them of any chance to be true to themselves. In such a society the just man, the enlightened man—who is the only truly free man—is an anomaly, a living reproach to all the others. Plato concluded: "Our just man eventually will be thrown into prison, scourged, racked, have his eyes burnt out and, after every kind of torment, be crucified."

Plato compared humanity to prisoners chained all their lives in the depths of a dark cave, where the lights and shadows flickering across the wall are their only reality. If one of the prisoners were freed and led out of the cave, Plato explained, he would at last see trees and water, open sky and sunlight. But on return to the cave, if he attempted to describe to his fellow men what he had seen, he would be mocked or even set upon. This, said Plato, is the fate of the enlightened man among men blinded by darkness. Yet, Plato insisted, the enlightened man must make the attempt to free his fellow men, because Nature intends that all men be free.

In this parable Plato points the way to a dramatic solution for society's ills which no ordinary reform will correct. Men must either break their fetters and leave the cave—an act far beyond the will or capacity of most—or accept the guidance of those who can. In Plato's terms these few capable of such spiritual leadership are called the philosopher-kings.

His famous dialogues known as *The Republic* present a society securely founded upon justice, in which each rank and class strive for the happiness to be found in the fulfillment of its proper calling. The highest calling of all belongs to the few who, figuratively speaking, have the courage to bring their newly won wisdom back to the cave and persuade their weaker fellows to lead a better life. These philosopher-kings are the only truly enlightened men; they constitute an aristocracy of the mind drawn from all ranks of society, a kind of secular clergy which forgoes the ordinary comforts of family and possessions in order better to pursue truth and to guide the ship of state.

But what truth do they pursue? What is the reality that Plato visualizes outside the cave? It is a world of ideas and of eternal laws which govern the transitory, unsubstantial world of appearances.

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The physical world, like the cave's flickering images, is untidy, shifting and out of focus. But there is order and purpose in the confusing kaleidoscope. Things happen according to immutable laws—laws governing life on earth, laws governing movement in the heavens, laws of logic governing thoughts, and moral laws governing behavior. None of these laws can be seen or touched; yet they are real nonetheless—more real, essentially, than the objects they govern. If Plato had known Newton's law of gravity, he would have considered it more real than any falling apple.

These laws and principles are building blocks in Plato's pyramid of ideas. At the foot of the pyramid are the properties which define all things and creatures. Near the top are the principles of mathematics and logic. Energizing the whole pyramid from the very top is a single, supreme idea called the Good, which enables knowledge to come to grips with reality. Everything, according to Plato, "participates" in this perfect and self-contained world of Ideas, and mutely aspires to it. But only man can aspire to it consciously; for only man has the power of reason to apprehend the world of Ideas.

To Plato, as to the greatest thinkers of our own day, it seemed miraculous that a man could shut himself up in a room and construct in his own head a plausible hypothesis—a mental model—of the way the cosmos works. In the mysterious processes of his reason—at times coldly mathematical, at times warmly intuitive—man seems to possess the key that can unlock the world of Ideas. It must be, Plato thought, that man is born with a spark of the divine world of Ideas already in him. How, otherwise, could pure reasoning lead him so often to the truth? In view of his power of reason, man has the special obligation to fan the spark to a bright glow, and through self-discipline and understanding to raise his inborn affinity with the world of Ideas to the level of conscious understanding. This striving, according to Plato, is the noblest purpose in life.

Thus Plato welded his political and social ideas into a single philosophic structure. Much of what he wrote is deliberately inconclusive and shrouded in metaphor. Dialogues, furthermore, tend to be indefinite. Plato used the dialogue form because he believed, like Socrates, that philosophy is not a set of dogmatic propositions but a cooperative quest for truth that involves each of the participants.

More important than his conclusions was Plato's method of reaching them. Believing that truth can be approached by reason, he discovered the rules by which the mind moves logically, step by step, from confusion to certainty. His realm of Ideas is actually what we would call the realm of pure science. For Plato had no interest in Nature for its own sake. The only aspect of Nature that interested him was astronomy, because it was the only one that could be described in purely mathematical terms. That is why early mathematicians and astronomers were the only scientists who profited from his work directly. Thus, inspired by Plato, Greek astronomers reduced the motions of the planets to pure mathematical models.

Even before Plato, Greek astronomers had made bold strides in their field. They had already found

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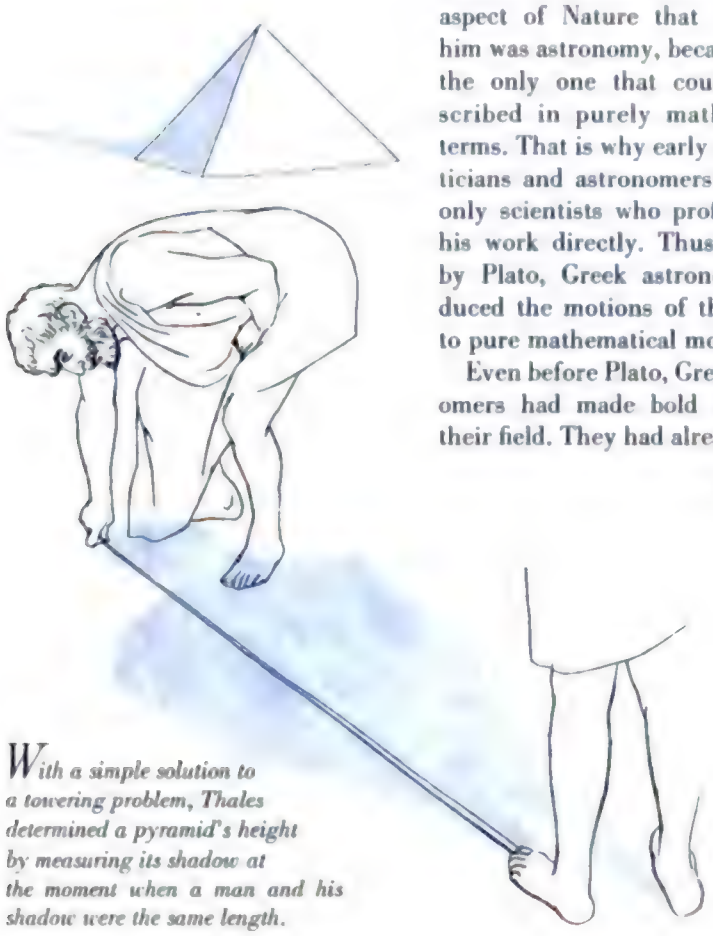

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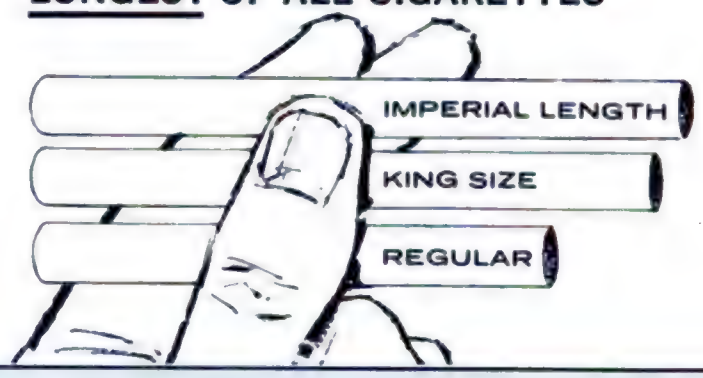

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out that the earth is a sphere. By 450 B.C. Philolaus the Pythagorean had suggested that the earth is not even at the center of the cosmos, and added that it is the earth, and not the sky, which rotates every 24 hours. At this point Eudoxus, adopting Platonic principles, worked out the first purely abstract model of planetary motions. This was probably in 357 B.C. In the next century Aristarchus of Samos conceived, some 18 centuries before Copernicus, an entire planetary scheme with the sun at the center.

Plato's over-all impact on posterity has been enormous. He has inspired poets with visions of the Ideal. He has provided modern physics with the same impulse he originally gave to ancient astronomy. Einstein's general relativity theory is completely Platonic in the way in which it pushes aside the evidence of the senses and fastens its faith to a sweeping and purely mathematical solution.

Plato also provided a framework for Christian philosophy. When St. John states the doctrine of the Incarnation by saying: "In the beginning was the Word . . . and the Word was made flesh," he is talking Platonism. "Word," *Logos*, suggests Plato's world of Ideas. "Flesh" refers to the perishable world of physical things. Christ, according to St. John, represents both worlds. He crossed the forbidden boundary between them and thereby redeemed the world of matter by reconciling it at last with the divine world of Ideas.

Plato and his great pupil Aristotle were the twin giants of Greek philosophy, and it is impossible to say which has had the greater impact on the ages. But the two men were actually poles apart in temperament and thinking.

Plato was the Protean architect of a world of Ideas. Aristotle was the methodical scholar. Plato fixed his attention on the heavens; Aristotle observed life on earth. In the sciences, Plato's province was mathematics; Aristotle's was biology. In pursuit of truth, Plato urged men to close their eyes and think; Aristotle told them to open their eyes and look.

Plato was 60 when the 17-year-old Aristotle left his home in northern Greece in 367 B.C. and came to Athens to study at the Academy. He stayed until Plato died 20 years later. Having studied so long under Plato, Aristotle accepted many of his ideas. He also saw the need for a rational cosmos which embraced everything in a single grand design. He believed, as did Plato, in a cosmic purpose, a spiritual goal toward which all things eternally strive. But Aristotle felt that the meaningful drama of Nature was staged on earth.

Aristotle was fascinated by Nature's tenacity and ingenuity in perpetuating the living species, even at the expense of the individual. He wrote: "How careful of the type she seems." He argued that forms cannot exist independently, as Plato suggests, in a separate world of their own. Forms must be inherent in living things themselves and provide them with their purpose: to achieve full form through growth, as the acorn inevitably grows into an oak, and then to propagate and preserve the form in descendants. Under Aristotle's eyes a new vision of life unfolded—a vast array of forms, moving steadily onward, from generation to generation, to the eternal pulsebeat of life. From there Aristotle's speculation swept up to the eternal laws of thought. The highest good, said Aristotle, is Mind in silent contemplation of the cosmos of unfolding forms.

Aristotle was the great organizer, distinguisher and classifier. Armed with the tools of logic, which he codified in final form, he amassed mountains of data on natural life and sorted them out in separate fields of learning, such as botany and zoology, which survive to this day. He admonished his students not to shrink from handling such unpleasant objects as spiders and dead fish. To Aristotle the marvel of a spider's self-perpetuation made it as divine as a star.

Other realms of human knowledge were pursued by Aristotle with the same thoroughness. There is hardly an area of knowledge, from domestic science to statecraft, that he did not explore and classify in his own way. To help his work, Aristotle used the Lyceum, his academy of advanced learning, as a center of team research. It soon became a hive of industrious experts, ready to tackle any intellectual or practical problem anywhere. This tradition of massive scholarship which Aristotle started is carried on at universities and research institutions today.

For centuries Aristotle's word ranked with the Bible on questions of fact and judgment. To the Middle Ages he was, in Dante's phrase,

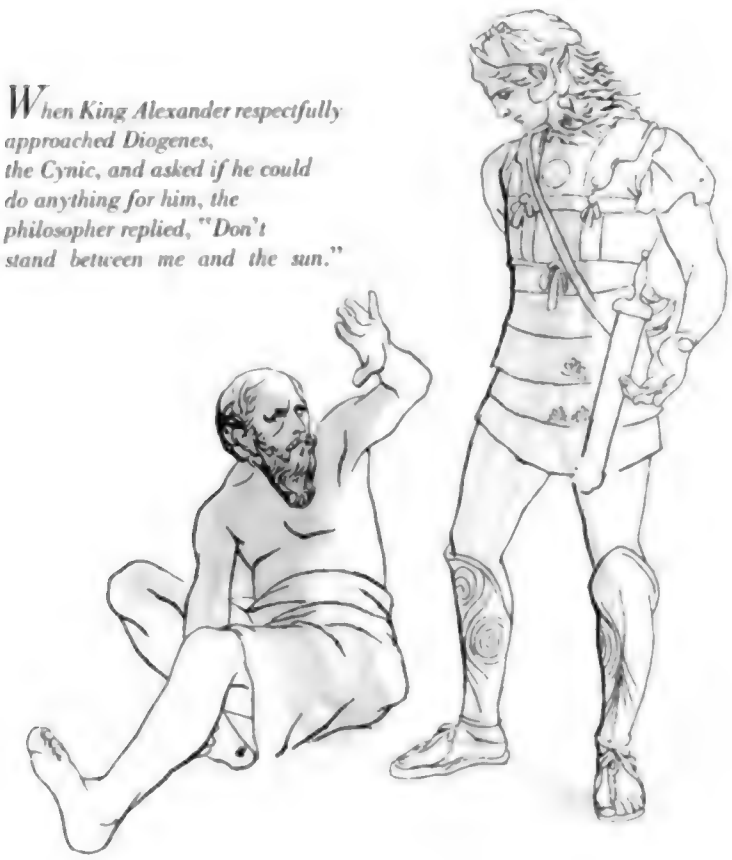
"the Master of those who know." His comprehensive system of knowledge so impressed Thomas Aquinas that the medieval theologian made reason a legitimate partner to faith in his massive work, the *Summa Theologica*, written in the 13th Century, which has endured as the official Catholic philosophy. Through Aquinas, Aristotle's concepts were embedded in the doctrines of the Catholic Church. In fact, the wide acceptance of Aristotle as the final authority became a handicap to scientists as they tried to break out of the Middle Ages with new discoveries and conclusions.

In the end the very grandeur and completeness of Aristotle's thought became self-defeating. Plato's cosmos remained forever open, beckoning the mind and the imagination to more and more distant horizons. Aristotle's world was sealed off from any further examination or expansion. Plato lives on because he left us with the great questions. Aristotle has been largely superseded because he sought to provide all the answers.

After Aristotle the floodtide of Greek thought ebbed and finally ran into the sands. Times changed. In the vast world of Alexander's empire the Lilliputian city-states of Greece lost their significance. With the disappearance of their old, reassuring world, people lost their bearings. The result was the first Age of Anxiety, in which philosophers were too busy ministering to man's need for peace of mind to build palaces of pure thought.

Several philosophies, with varying periods of popularity, attempted to serve man. The Epicureans huddled together in a closed circle of "Friends," intent on reassuring man that when he dies his soul will disperse into atoms and, therefore, he has nothing to fear from afterlife. The Stoics, made of sterner stuff, believed in a Universal Reason above society and championed the man of principle who follows it unswervingly even into voluntary death. Equally uncompromising were the Cynics, who showed how to attain true freedom in Fourth Century beatnik style. Their founder, Diogenes, led the raw, natural life, content with spending his nights sleeping in a barrel and his days sitting in the sun. Then came the Skeptics, who were inclined to deny the validity of any kind of opinion in their desire to live in peace.

But the quest for certainty refused to die. From the ruins of Greece's intellectual splendor Plato's world of ideas rose again, fusing with passionate intuitions, hopes and beliefs that were flooding in from the new Greek territories in Asia. Thus things stood when Christianity transfigured the world. Greek thought, accepted by all as the badge of universality, furnished Christian Revelation with a structure of ideas; Pythagoras and Plato became the metaphysical music in the background of the Gospel of St. John: "In the beginning was the Word . . . ."



When King Alexander respectfully approached Diogenes, the Cynic, and asked if he could do anything for him, the philosopher replied, "Don't stand between me and the sun."

1/125 sec., f/8, Takumar 200mm lens on Asahi Pentax.

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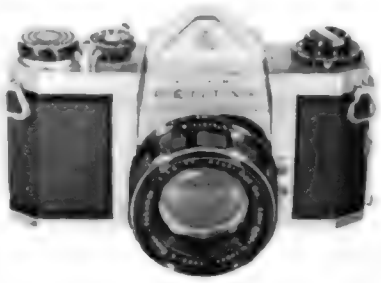

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Former Saint-Aignan, now movie house, has town's only stage, is used for school dramatics.

A Town of Busy

Crises or no crises, the inhabitants of Senlis, France, spend much of their time in churches. The town, 34 miles north of Paris, was long a favorite residence of kings, who built a dozen medieval churches, not including the cathedral. Genteelly poor now that the kings have departed, the practical *Senlisiens* have put their redundant houses of worship to varied uses. L'Eglise de Saint-Aignan, which dates from the 12th Century, is now a cinema (*left*). Magnificent Saint-Pierre's (*below*), founded in the 11th Century and rebuilt in the 13th and 15th, houses the Senlis Market (cheeses, meats, dry goods, hardware). L'Eglise de Saint-Frambourg (*right*), a re-

Saint-Pierre, now market, was deconsecrated in 1884, sheltered German horses and tanks in two World Wars.

Churches

markable 12th Century structure consisting solely of a long nave unsupported by pillars, is a car-repair shop. And in the 18th Century Chapelle de la Charité, now Senlis' Salle des Fêtes (*next page*), Bardot-style *Senlisiennes* and their escorts at weekly dances indulge in the genuflection of the Twist, the Madison and the Cha-cha-cha.

Cavernous Saint-Frambourg, in secular use since the Revolution, houses vehicles in various states of repair.

CONTINUED

In the Salle des Fêtes, once the chapel of a hospital run by the Frères de Saint Jean de Dieu, dancers do the Madison at town's regular Saturday-night affair.

DETAIL FROM A HEAD BY MICHELANGELO

4 classical features tell us whether a scotch is merely good or really great–its nose, its taste, its character and its colour. Hard to define though the character of whisky may be, it is no abstract thing. The best scotch must be at least well-behaved and pleasantly smooth–although there was ever more than this to really great whisky. There must be big and cheerful things about great scotch, good, clean things and a quiet, well-contained *elan*–a strength and a softness too. All this and more is true of Grant's–it is a scotch in which vigour and maturity have come to the perfect understanding.

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Man's First Atomic Cave

No one had ever seen a cave like this. It was almost circular. The handsome domed roof was decorated with rings of white, red, green and blue and hung with thin stalactites. The men, who had crawled in through a two-foot hole 1,200 feet below the surface, looked in awe at the first permanent cave made by an atomic blast. The blast had been set off by the AEC 16 months ago deep beneath the New Mexico scrublands. It blew a huge bubble in the rock, partly filled it with molten salt and seething vapors. The gases cooled, the salt recrystallized, the radioactivity subsided until the cave, 170 feet across and 80 feet high, was cool enough (140°F.) for miners to tunnel into.

CONTINUED E11

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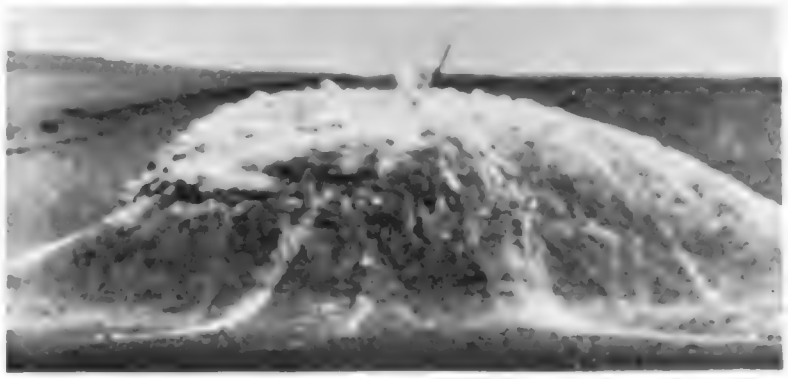
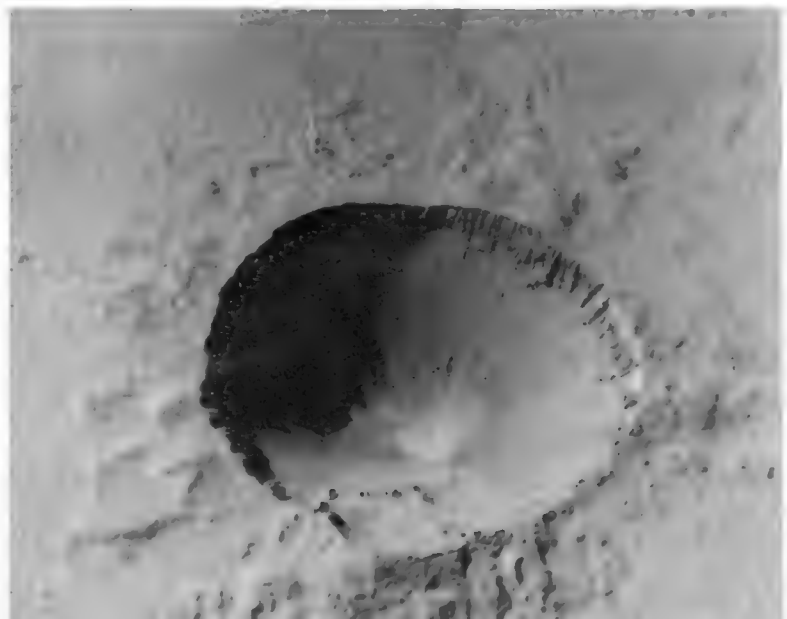
An Awesome Way to Dig a Hole

Months after the atomic blast a 100-kiloton thermonuclear device was set off near Las Vegas, Nevada, to test how a hydrogen explosion can be used for earth-moving. The impressive result is shown below. In this, the first H-blast in the U.S. for peaceful purposes, the bomb threw up 7,500,000 cubic yards of earth and rock weighing about 12,000,000 tons. Intense fallout was confined within a 6-by-4-mile area and just five days after the blast workers were able to return for brief periods to the crater's radioactive lip. The combination of vast earth-moving power and relatively low radioactivity bolstered hopes of scientists that hydrogen devices can safely hollow out harbors, build canals at one third of the cost and in about one half of the time required by conventional earth-moving methods. The Atomic Energy Commission in its annual report told Congress that it would probably be able to take on major earth-moving projects in five years.

In Nevada test, desert floor rises immediately after detonation (*top photograph*). In next picture, three seconds after blast, dome is 290 feet high. Crater (*bottom*) is 320 feet deep, 1,280 feet across.





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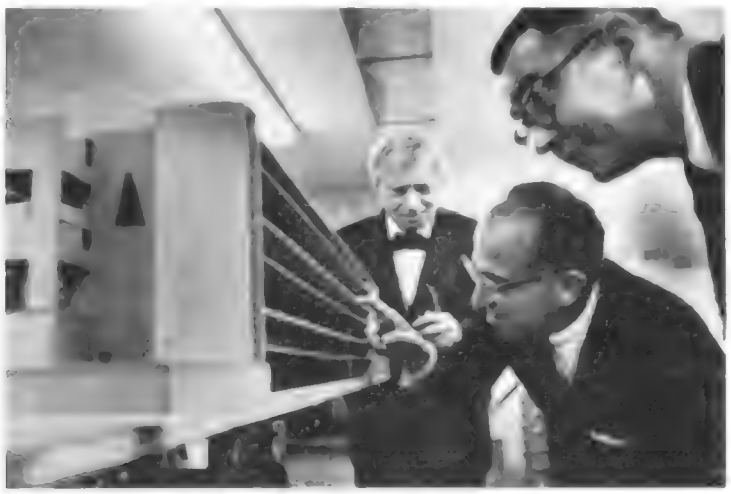
The Great New Dream of Dr. Salk

'The library will go here'

'The gardens will have trees and canals'



'The view will be magnificent'

The vision Dr. Jonas Salk sees as he stands on a sun-baked cliff overlooking the Pacific is an experiment on a grand scale, an intellectual adventure almost without parallel in the history of science. To house this vision a cluster of spacious yet cloisterlike buildings is already being built in San Diego. And, more important still, the key men who will carry it out —an all-star team ranging from Nobel Biophysicist Francis Crick to Novelist-Scientist C.P. Snow—have already been recruited.

The embodiment of Dr. Salk's dream—he has had it ever since 1954 when he developed his polio vaccine—is called the Salk Institute for Biological Studies. He fought against using his name but his sponsors insisted on it. In the institute a brilliant international array of scientists will be gathered in a congenial atmosphere, given proper facilities and few distractions and left absolutely free to think and work as they please. Here, as Salk sees it, they could bring about an explosive expansion of human knowledge. The benefits to mankind would be far more sweeping than one vaccine for a single disease.

The site, 27 beautiful seaside acres, was a gift from San Diego. Financial support has come from many places, especially the National Foundation and a committee of prominent businessmen. And a gifted architect, Louis I. Kahn of Philadelphia, is putting off commissions on three continents to transform Salk's dream into three-dimensional reality.

Salk and Architect Kahn (*in bow tie*) enthusiastically go over plans and inspect cardboard models of lab buildings.

His Own Work: Vaccine against Many Viruses

In low-temperature evaporator, Salk concentrates quantities of live virus for freezing and shipping to California for further studies in immunology.

As he speaks his thoughts into a dictating machine (*far left*) in the early morning hours or makes the last rounds of his University of Pittsburgh laboratory, Salk is full of plans for the institute and his own research. Though he will be the institute's guiding spirit, he will turn over accounting and housekeeping duties to others. As director, he plans mainly to see that other Fellows are able to work without interference and that they have a lot to say about running the institute. As a Fellow himself with his own lab, Salk is eager to get back to the immunologic studies which success and fame interrupted. His pioneer work with killed-virus vaccines has convinced Salk there is no theoretical obstacle to the ultimate production of a single, absolutely harmless vaccine which, administered early in life, might protect the individual against 10, 50 or 100 virus diseases.

In heated incubation room, Salk inspects sample of polio virus growing in tissue culture. Now set up in temporary California quarters, Salk still has strong emotional ties to the lab where he did most of the work that brought him fame.

CONTINUED

At family's vacation retreat on Deep Creek Lake, Md., Salk and his youngest son, Jonathan, 12, sail their fiber glass Beetle. Salk gets some of his best ideas while on the lake.

A Jaunty Sailor and Cautious Skier

As Salk's son Darrell, 15, starts up outboard and Jonathan straightens rope, Salk puts on water skis. Sons tease him for using two skis instead of daredeviling on one, as they do.

Jonathan gets an encouraging hug from his father just before making his acting debut at the local summer theater. All three Salk boys have their father's love of science.

Caught without his glasses and serious scientific manner, Salk grins with exhilaration on a morning swim. For new institute he sought a site as serene as the lake that he loves.

Salk, who has been working on institute plans spread out on the picnic table, reads letter from his oldest son, Peter, a junior at Harvard, that his wife Donna has just opened.

CONTINUED

RENATO DULBECCO

Trained as a physician, Dulbecco has used virology and genetics to shed light on mysteries of cancer.

EDWIN LENNOX

A theoretical physicist, Lennox employs the techniques of biochemistry in the study of antibody structure.

SEYMOUR BENZER

Abandoning his work in solid-state physics, Benzer became a pioneer in pinpointing the function of genes.

MELVIN COHN

A biochemist and immunologist, Cohn has been learning how cells can form protective antibodies.

A Flexible Fellowship of Brilliant Minds

JACOB BRONOWSKI

A mathematician who applies philosophy to science, Bronowski will leave London to join the institute.

FRANCIS H. C. CRICK

A British physicist, Crick shared Nobel Prize for figuring out molecular structure that governs heredity.

JACQUES MONOD

At the Pasteur Institute in Paris, Monod has helped explain how cells make proteins from raw materials.

by ALBERT ROSENFELD

The men on these pages will be the first Fellows of the Salk Institute. Together they constitute a formidable concentration of creative scientific brain power. But to appreciate the nature of the excitement that these intellects will be generating at the institute, it is necessary first to appreciate what has been happening in biology in the past amazing decade.

Thanks to brilliant new techniques, instruments and theories, biology has suddenly been brought down to a level where scientists can study and manipulate *individual molecules* in living organisms. This development has inspired many physicists and chemists to switch their interests and special skills to the new "molecular biology." Thus a physicist-turned-biologist such as Seymour Benzer or Leo Szilard, both of whom are pictured above, is a much more likely candidate for an institute Fellowship than a more conventional biologist who got a Ph.D. in the field 10 years ago, and whose knowledge may therefore be unbelievably out-of-date.

Scientists have lately learned, for example, that human heredity, once believed to be fantastically complex, is governed by the simple, repetitive line-up of only four basic units in a single kind of molecule, nucleic acid. "Think of it," says Jacob Bronowski. "The language of life, the words of command which are passed on from parent cell to daughter cell, is spelled out in a code with only four letters. That is the whole of nature's alphabet!"

Where scientists used to speak merely of biology, now it is quite common to hear of hybrid disciplines such as biophysics, biochemistry, space biology, social biology and psychobiology. This is not to mention such studies as mathematical biology (Harvard has just established a division devoted to nothing else), bionics (the electronics of living organisms) and exobiology (the study of life on other worlds).

Each new concept, each discovery opens vast areas that cry for exploration. Explore them is exactly what Salk wants the institute to do. At the same time, with new information proliferating in all directions at bewildering speed, Salk believes it is essential to begin integrating the new and scattered insights. Hence the emphasis on gathering under one roof a staff of men capable of 1) exploring the new frontiers with perceptive ingenuity and 2) synthesizing the chaotic masses of data into an orderly structure of knowledge.

Salk expects that the institute's Fellows will be concerned with the philosophical implications of their work, a realm he calls "biophilosophy." He hopes they will continually be asking: What will be the effects of biological advance on the arts and education? What about the cosmic meaning of biological striving? And the morality of tampering with the forces of life? He is happy to have as Fellows of the institute men already enmeshed in the arts and humanities: Jacques Monod, an accomplished cello player as well as a distinguished biologist, and Bronowski, a brilliant mathematician and philosopher who has also written a popular biography of the poet William Blake.

How will these unfettered minds remain free of the frustrations that plague the Fellows of other scientific institutes? Some scientists and scientific administrators, wise in the ways of research institutions, doubt that the set-up Salk visualizes can really work. Salk himself gives no guarantees. "This is an experiment, after all," says Salk, "and certainly one of the great questions to be answered in the experiment is whether or not it is possible to institutionalize freedom."

Four of the Fellows—Monod, Crick, Szilard and Weaver—will be nonresident Fellows; that is, they will spend only part of each year at the institute. But each resident Fellow will run his own institute-within-an-institute, where he can spend full time doing whatever most intrigues him. He will not be cramped for space, neither will he want for money. To scrimp on either, Salk believes, would be to scrimp on the Fellows' freedom to create, and would be foolishly uneconomical.

Each Fellow will be assigned more laboratory space than he needs, to allow room for reason-

LEO SZILARD

A pioneer atomic physicist, Szilard has developed new theories of immunity, aging and heredity.

WARREN WEAVER

A former Rockefeller Foundation research director, Weaver will be chairman of the institute's board.

able expansion. He will also be given a sum of money, limited but substantial, which he can spend as he sees fit, and he will know that the money will be there next year and the year after without the necessity of working up laborious presentations to justify each new appropriation. Out of the money will come the Fellow's own salary. If he chooses to work alone in a tiny corner of his laboratory and leave most of the money unspent, that is fine. If he chooses instead to hire a staff of assistants, buy expensive equipment, maintain menageries of experimental animals and even accept outside grants to carry out additional projects, that too is fine. Each Fellow can do as he likes with his space and his money. Moreover, he can change his program or his facilities at any time.

But how to provide this kind of flexibility in an institution that must after all be constructed of firm, inflexible building materials? Salk and his imaginative architect, Louis I. Kahn, have taken a novel approach to building. Salk likes to think of the institute not as a building or group of buildings but rather as an organism. He speaks of the first group of Fellows, for example, as the organism's "original germ plasm, the genetic material for further replication." He refers to one Fellow as an enzyme who will catalyze the activities of the others.

Thinking of the institute in this unorthodox manner has enabled Salk and Kahn to break ground for the buildings before the interior plans were complete. Since the design gives such flexibility, the basic laboratory buildings can be erected with almost complete unconcern for such normal construction worries as where to put the complex piping and electrical wiring. Key to the plan is locating the entire service-and-maintenance plant at one end of each of the three-story lab buildings. Between the ceiling of one story and the floor of the next there will be a 9-foot-high space, big enough for workmen to walk in and install whatever piping or wiring is needed anywhere, anytime.

Each Fellow will have the privilege of arranging his own space as he pleases. If he needs a special "hot room" or "cold room" for his research, if he wants oxygen conduits or X-ray apparatus or humidity-control apparatus, he need only ask and it will be installed.

Apart from his lab each Fellow will have a spacious study with a view of the Pacific and lovely gardens in which to stroll or meditate. It is hard to foretell where such meditations might lead. To new basic biological knowledge, certainly, with inevitable new applications for medicine. Salk suggests that there might be applications—and implications—for human society as well.

An organic molecule is, after all, a living organism, even an "intelligent" living organism, since it "knows" what it must do and does it. A simple cell is, in a very real sense, a community of intelligent organisms, a community with quite a large population where some give orders and some take orders, and all carry out a fantastic complexity of activities with astonishing speed and efficiency. This is achieved at times even while fending off and rendering harmless invading viruses—until something goes wrong. If some order is incorrectly transmitted, or some molecule miscarries its task, or some vital chemical is not supplied at a crucial moment, then the viruses leap into attack. The viral molecules take over, enslaving those of the cell for their own ends. In studying these phenomena, are there lessons to be learned by men and nations? Is there light to be shed on war and peace, on the rise and fall of civilizations?

Jonas Salk thinks there might be. He likes to tell the story about the old lady who, asked the secret of her vigorous longevity, explained, "I long ago learned to cooperate with the inevitable." The Fellows at the institute will be probing into the area which the "inevitable" encompasses and, by studying the ways of nature, will acquire increasing understanding of what is truly inevitable. Jonas Salk believes that, by following the old lady's precept and learning to cooperate with the inevitable, man can have a long and vigorous future on his native planet.

C. P. SNOW

The famous British novelist-scientist (here conferring with Salk) will be a trustee of the institute.

At start of the game, pretty young cheerleaders watch expectantly as a pair of guards stride out onto polished floor. Donkeys' natural surefootedness is augmented by neat rubber shoes.

Throwing himself into spirit of game with abandon, a faculty member soars from saddle while his donkey teammate plans next move. Human players collected a variety of bruises.

In a mighty leap, a student player shoots a basket and the high-school gymnasium becomes bedlam.

FUN AND

At best, basketball players are a strange breed: to excel at the great American game, they should resemble giraffes in height, gazelles in fleetness, computers in precision of calculation. But none is stranger, and few more adept, than the four-footed athletes who participated in a recent match at Morningside High School, Inglewood, California. Bearing such names as

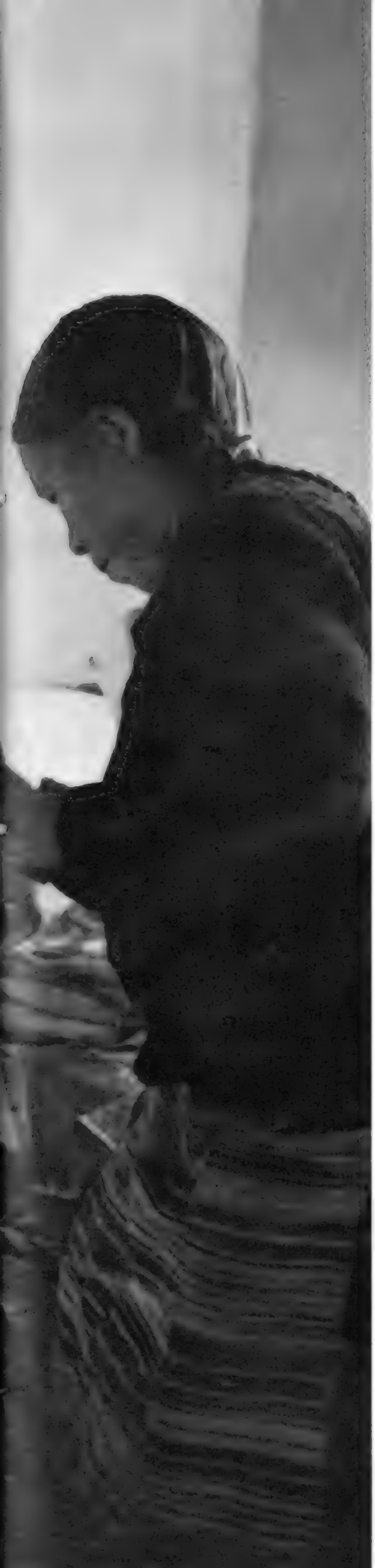
GAMES FOR DONKEYS

Marilyn, Suzie and Jenny Lou, they are quick-witted donkeys who tour the U.S. with their coaches, Ben Reynolds and his mother Violet, playing basketball in winter, softball in summer. "They love being in a game," says Ben Reynolds. "If we tried to leave one out she would bray her head off." Mrs. Reynolds adds: "When they finish a game, they get cube sugar or carrots. They love bake goods, but we've been laying off bake goods lately. They're putting on a little weight." In the goings-on at Inglewood, for the benefit of a scholarship fund, the donkeys had for teammates members of the faculty on one side, students on the other. The students won, 24–22, but the losing donkeys didn't mind. They play for kicks.

Dismounted player holds partner's reins, as special rules provide. Donkeys know the rules well.

Hope's new father-in-law, the Maharaja of Sikkim, watches the wedding from his five-foot-high throne. He is the nominal ruler, but his son runs things.

Hope's sister-in-law, Princess Kula, savors her serving at the wedding lunch as she moves among the 5,000 guests who feasted on boar, drank champagne.



Post-deb's wedding to Prince of Sikkim

At first glance the young Manhattan post-debutante (*left*) might have been dressing for a costume ball to highlight New York's spring social season. But the gown was her wedding dress and the final fitting took place in the fairyland city of Gangtok, the capital of the cloud-shrouded Himalayan kingdom of Sikkim (a protectorate of India), on the eve of the marriage ceremony that would make 22-year-old Hope Cooke the kingdom's Maharaj Kumari, or crown princess.

She had met the crown prince, Gyalsay Rimpoche Maharaj Kumar Palden Thondup Namgyal, a widower, on a 1958 vacation in India. A romance flowered and in due course the prince, who is 39 and revered by his father's 160,000 subjects as a reincarnation of a Buddhist priest, asked for her hand. To await a propitious day, court soothsayers delayed the marriage one year. On the selected day, with 10 ambassadors and three maharajahs in attendance, the bride sipped yak butter tea and allowed the royal astrologer to write sacred signs on her fingers. Then she sat on her throne beside the future ruler of a land that has no lawyers or newspapers and where mail comes by pony. But the honeymoon was brief; soon after the ceremony bride and bridegroom flew to the U.S. because of the death of the bride's guardian, Selden Chapin, a U.S. diplomat.

Hope's wedding gown is finally fitted by the eldest sister (*left*) of the crown prince and a Tibetan dresser. The gown is of white brocade silk.

Hope's throne is several inches lower than that of crown prince. Draped in a scarf, Hope sits beside her bridegroom after the wedding ceremony.

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Viceroy—the international American cigarette

Under influence of drug LSD, Barbara Dunlap, a Cambridge, Mass. housewife, sees visions in a lemon seed.

CONTROL OF THE BRAIN, PART II

THE CHEMICAL MIND-CHANGERS

by Robert Coughlan

Frazier dropped the brush he had been using and thrust his hands into his pockets. . . . "Well," [he said] "what do you say to the design of personalities? Would that interest you? The control of temperament? Give me the specifications, and I'll give you the man! . . . Let us control the lives of our children and see what we can make of them. . . ."

"Just so you don't think you're God," I said hesitantly, hoping to bring matters out into the open. . . .

"There's a curious similarity," he said.

I suffered a moment of panic. "Rather considerably less control in your case, I should imagine," I said, attempting to adopt a casual tone.

"Not at all," he said. . . . "It's the other way around. You may remember that God's children are always disappointing Him. . . . I don't say I'm never disappointed, but I imagine I'm rather less frequently so than God."

What is all this? Why, as anyone old enough to have read H. G. Wells or young enough to be reading comic books will know at once, this is science fiction. In fact, it is the nonpareil, the always-good-for-one-more-thrill plot: the story about the Eccentric Scientist who has discovered the Secret of Controlling People, and—and so forth. It comes from a novel called *Walden II* written by B. F. Skinner.

But despite the familiarity of the form, this happens to be a different sort of science fiction. The author believes the plot and moreover he insists on it. That is, he believes that human behavior *can* be and *ought* to be controlled by

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With Cambridge group (top left) *that is taking LSD as psychiatric experiment, Barbara Dunlap wanders off into her own world. Small dose of LSD produces hallucinations and an intense mystical experience.*

BEHAVIOR CONTINUED

scientists such as "Frazier," mastermind of the social Utopia for which *Walden II* is an honest-to-goodness working blueprint. "Frazier" himself bears a striking intellectual likeness to the author, who, to give him his full professional identity, is professor of psychology Dr. B. F. Skinner of Harvard, one of the most influential figures in American psychology since William James.

Dr. Skinner is a psychological "determinist." He maintains that man merely has illusions that he possesses free-will and that actually all human behavior is caused by material events. "Caprice," Skinner says, "is only another name for behavior for which we have not yet found a cause." Consequently expert scientists owe it to humanity to take charge of events and arrange things so that people behave in ways that will be for their own good. There are plenty of scientists, including some fully as eminent as Dr. Skinner, who disagree with him—in some cases, violently. Yet, when one examines the arguments that swirl around the issues he raises, what is extraordinary is that so many scientists do agree with his basic premise: that man *is* to a large degree controllable and science *can* and *will* know enough about him to manipulate his behavior in many ways and with a great deal of precision. In other words, science does seem to be well on the way to supplying man (for better or worse) with the means to shape a great part of his own thoughts, emotions, actions, and hence his earthly destiny.

That is what this two-part article is about, and it is why Dr. Skinner and his not-so-imaginary "Frazier" are important.

In Part I of LIFE's discussion of this subject (LIFE International, April 8), it was seen that new and incredibly refined techniques are enabling scientists to penetrate the living brains of animals and humans and explore the physiology of behavior at its sources. The method is known as ESB, for "Electrical Stimulation of the Brain." It works because "brain power" itself is a form of electrical power. The impulses that flow throughout the nervous system and carry the messages that result in thoughts and actions are tiny bursts of electrical energy produced within the 10 billion or so individual nerve cells that make up the system. However, this process is not *only* electrical. It is electrochemical—and the chemical side of the matter is even more fundamental.

In the first place, the electricity itself is created by chemical reactions inside the cell. Further, the transmission of nerve impulses from cell to cell is governed by chemical reactions that take place in the synapses, the so-called "decision points" of the nervous system. Finally, when a stream of impulses arrives at a destination, any activity that results is because of and by means of certain chemicals (neurohormones) released there. Thus, for example, it is not the impulse as such but a resulting chemical called acetylcholine that actually stimulates a muscle and makes it move. Accordingly, anything that ESB can do, chemicals ought to be able to do as well or perhaps even better—once the technical problems of using them are solved.

To manipulate the chemistry of behavior, one needs to know which reactions occur in what sequence in which parts of the brain to bring about a particular effect. One must then find ways to deliver the right doses of chemicals to the right locations through the "blood-brain barrier" that surrounds the brain's cells and selectively admits or blocks substances passing by in the blood stream. These "psychochemicals," as they are called—or "chemical mind-changers," as Author Aldous Huxley has more conveniently termed them—must not upset the body's other chemical processes and create unpleasant side effects.

Nothing about this is in the least easy. As Biochemist Dr. Robert S. de Ropp has put it, "The scientist who attempts to study the chemistry of thought and feeling resembles a burglar attempting to open a vault of one of the world's major banks with a toothpick."

Although scientists are awed by the problems involved, they believe that a great many of them can be solved—and moreover, that a good many may be in the near future. Nuclear Chemist Dr. Glenn T. Seaborg, chairman of the Atomic Energy Commission, believes that the next few decades may well bring "pharmaceuticals which change and maintain human personality at any desired level." This belief comes partly from the rapid

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gains in knowledge made possible by ESB and other sophisticated techniques of investigation. Part is due to the knowledge explosion in all the physical and biological sciences. Most of all, however, the scientists' optimism is based on the fact that so much has been happening in psychochemistry quickly and unexpectedly.

The present huge and growing market for psychochemicals began only about 10 years ago with the introduction of the two major tranquilizers, Rauwolfia and chlorpromazine. Their exciting successes touched off the search for other chemical mind-changers, and many scores have been found. In most cases scientists still are not sure how or why they work, but they do work. They change minds, alter sensations, perceptions, moods, desires, ways of thinking and acting. And scientists already know enough about them to be able to project from the present results some startling possibilities.

One of the most active areas of current research is the so-called "hallucinogens." The term is somewhat misleading, for there are all sorts of substances and conditions that can cause hallucinations: aspirin or caffeine in big enough quantities; prolonged isolation or extreme fatigue, sleep loss, hunger, pain or anxiety; any severe change in "homeostasis," the body's natural balance of fluids, salts, blood sugar, oxygen and other chemicals. Moreover, the hallucinogens do not always cause hallucinations and they do have other effects, as we shall see. Their special quality is that they can bring "visions" or dramatically different ways of seeing things, while leaving the subject's mind more or less alert and his body within the bounds of physiological safety.

Nature produces a number of these drugs, and apparently many of them have been known and used for thousands of years. The most familiar comes from the female flower of the hemp plant, Cannabis sativa. Americans call it marihuana, Moroccans call it kief—it has as many names as locations, and the plant thrives in almost all the temperate regions of the world. Mexico produces several potent natural hallucinogens, the best known being "magic mushrooms," from which the active chemical substance called psilocybin has recently been extracted and put to work in research. Mexico also produces the peyote cactus, source of the chemical known as mescaline. Belladonna, thorn apple and henbane, members of the Solanaceae family of plants, were familiar ingredients of medieval Europe's witches' brews and sorcerers' potions. Such drugs have been used for centuries by many religious sects to produce other-worldly mystical visions; more recently they have become popular with writers, poets, painters and others interested in arranging the ordinary materials of existence into significant patterns and in seeking for "transcendental" meanings, intuitions and vistas. It is worthwhile sampling a few of their reports.

R. Gordon Wasson, a New York banker whose avocation is ethnomycology (the study of the role of mushrooms in primitive cultures), reported his experiences with Mexico's "magic mushrooms" in LIFE International (June 10, 1957): "They were in vivid color, always harmonious . . . palaces all laid over with semiprecious stones . . . a mythological beast drawing a regal chariot. Later it was as though the walls of our house had dissolved, and my spirit had flown forth, and I was suspended in mid-air viewing landscapes of mountains, with camel caravans advancing slowly across the slopes, the mountains rising tier above tier to the very heavens. . . ."

Under mescaline's influence, the psychologist Havelock Ellis saw "thick, glorious fields of jewels" that "would spring up into flower-like shapes beneath my gaze, and then seem to turn into gorgeous butterfly forms." With the same drug Aldous Huxley saw in a small vase of flowers ". . . what Adam had seen on the morning of his creation—the miracle . . . of naked existence . . . the divine source of all existence. . . . Words like 'grace' and 'transfiguration' came to my mind." But other decidedly unpleasant effects include terror and fears, shattering anxieties, dizziness, nausea, headache.

Substances that could cause such extraordinary mental aberrations were bound to interest anyone hopeful of manipulating mental processes, and attempts were made to extract the active materials from the plants. There were some successes. The peyote cactus yielded mescaline in 1894; early in the present century henbane yielded scopolamine, used in obstetrics to induce "twilight sleep." But there were many discouragements, including unwanted side effects, and intensive investigation had to wait for interest in hallucinogens to be triggered by the emergence of the amazing new compound, LSD-25.

LSD is also derived from a natural product, ergot, a black fungus that grows on rye heads. In medieval Europe, when rye flour was a staple and knowledge of medicine was lacking, ergot caused a form of insanity known as "ergotism" and outbreaks of "St. Anthony's Fire," an affliction that made people's hands and feet turn gangrenous. In the hands of modern chemists it proved to be a source of medicines valuable in treating excessive bleeding and migraine headaches. Like many of the other important psychochemicals, LSD-25 was discovered largely by chance. Dr. Albert Hofmann, of the Swiss drug firm of Sandoz A G, was working with an ergot component called lysergic acid, and in the normal course of trying out chemical combinations, he added molecules that created a brand new compound, *d-lysergic acid diethylamide tartrate*. It became LSD-25 for short, and now is commonly referred to simply as LSD.

Harvard Psychologist Dr. B. F. Skinner has written a novel about the control of human behavior and believes "rigorous technology" will make his predictions come true.

That same afternoon, as Dr. Hofmann noted later in his lab report, "I had to go home because I experienced a very peculiar restlessness which was associated with a slight attack of dizziness. I went to bed and got into a not unpleasant state of drunkenness which was characterized by an extremely stimulating fantasy. When I closed my eyes . . . I experienced fantastic images of an extraordinary plasticity. They were associated with an intense kaleidoscopic play of colors." Suspecting that his latest creation had something to do with all this, he deliberately swallowed a tiny bit of it. Again the strange feelings and visions came and this time with more dramatic effects:

"I lost all control of time; space and time became more and more disorganized and I was overcome with fears that I was going crazy. The worst part of it was that I was clearly aware of my condition though I was incapable of stopping it. Occasionally I felt as being outside my body. I thought I had died. My 'ego' was suspended somewhere in space and I saw my body lying dead on the sofa. I observed that my 'alter ego' was moving around the room, moaning."

What Dr. Hofmann had stumbled onto, as later investigation showed, was a psychochemical of incredible potency. He had taken 250 micrograms of it, a mere speck, perhaps 1/70,000,000 of his own body weight. But, as is now known, 100 micrograms are enough to produce a full-scale reaction in a 150-pound man, and even 20 micrograms, a dose too small to be seen except by microscope, is enough to create effects: a feeling, as one expert describes it, of being "one martini off."

It has been 16 years since the first research reports on Dr. Hofmann's discovery were made public by the Sandoz company, and 14 years since the first research program in the U.S. was organized by Dr. Max Rinkel of Massachusetts Mental Health Center—an interval that has seen close to a thousand research papers published on LSD and scores of thousands of individual LSD experiences. If one were to try to summarize the general feeling among behavioral scientists about this peculiar chemical, it would be hard to improve upon the comments of Dr. James M. Dille of the University of Washington before a panel of distinguished pharmacologists:

"Investigation in this area is difficult," said Dr. Dille. "Those of us who have worked with LSD and human subjects know the diversity of reactions it produces. In some, the LSD experience is filled with reward and gratification. In others there is terror and indescribable fear. This diversity of effect is quite

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confusing. Yet it is this very diversity of effect which presents the challenge to investigators. . . ."

In other words there can be good effects or bad effects or a variety of effects in between. Equivocal as it sounds, this is important because the subject of LSD and the hallucinogens in general has lately become a matter of controversy—and the controversy seems likely to grow louder and larger.

Here, without presuming to judge all the issues involved, we identify some landmarks that will aid the reader in reaching a rational opinion. The following statements are derived from many well-qualified sources but particularly from the work of Dr. Sidney Cohen of the University of California School of Medicine. A pre-eminent authority in the field, he has surveyed the results—both published and unpublished—obtained by other researchers.

▸ The three main hallucinogens—LSD, psilocybin and mescaline—produce similar psychological effects, the only important differences being the amount of the drug needed to achieve these effects and the length of their duration. The effects of LSD and mescaline last eight to 10 hours usually; the effects of psilocybin last four to five hours. LSD is 100 times as powerful as the same quantity of psilocybin and 7,000 times as strong as mescaline. Also it is largely free of the adverse side effects—nausea is the most common—that sometimes come with the others.

▸ From the data that Dr. Cohen collected on "almost 5,000 individuals who had received either LSD or mescaline during more than 25,000 occasions," he found the evidence indicates that with proper precautions "they are safe when given to a selected healthy group"—*i.e.*, people who are not seriously sick either physically or mentally. (Psilocybin was not included in this survey because the results of research projects on it have only recently become available.)

▸ For "normal" people, the hallucinogens can give a rewarding esthetic, philosophical or religious experience—such as a sudden sense of comprehension of the nature of God.

▸ However, the effect the drug has on a person depends a great deal on his or her "mental set" and the whole environmental setting in which the drug is taken. If the subject expects to have a rewarding experience, and if the setting is pleasant and includes someone with whom he feels at ease and in whom he has confidence, the experience will in all likelihood be a good one. This person should be an expert on the uses and possible misuses of these drugs.

Under those conditions the sequence of events after taking LSD might go as follows:

For a while, as little as 15 minutes or as long as two hours, nothing at all happens. The subject feels quite normal. Then, as the drug takes effect, there may be physical symptoms: muscular tension, tingling, trembling, rapid pulse, deep respiration, pain localized in some limb or organ. But ordinarily there are only slight feelings of chilliness and perhaps an enlargement of the pupils of the eyes, seldom nausea or headache.

All the important manifestations of LSD are psychic, and the earliest and most common is a tremendous intensification of visual perception. Dr. Cohen says the effect is "as though a translucent membrane had been peeled from one's eyes for the first time." Everything becomes clearer, brighter, sharper, endowed with dimensions and qualities never before realized. The subject may lose himself for hours in rapt contemplation of a piece of wood, a stone, a flower, and feel that at last he understands the essential nature of these things.

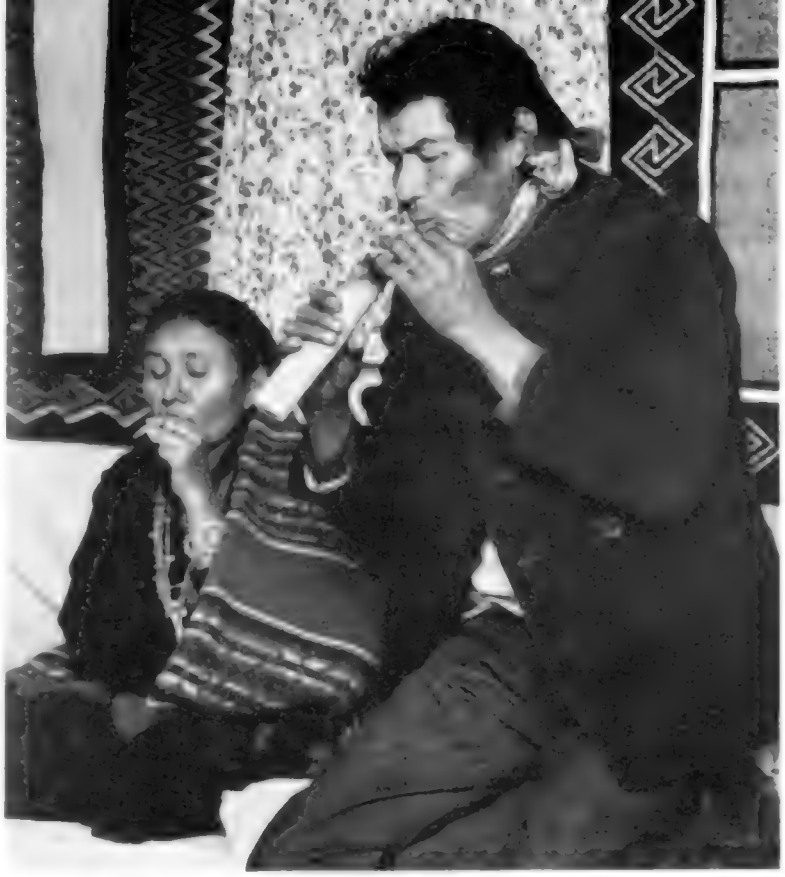
With the deepening of the drug's effects, the subject may realize active illusions. As Dr. Hofmann noted in the original LSD experience, these come and go with "extraordinary plasticity": crystalline landscapes, jewel-encrusted mountains of gold, geometrical patterns, flowers, birds, butterflies, fountains of color. These may give way to actual scenes, animals, objects, people, voices from an earlier time, even from early childhood—and he may feel that he is "reliving" the experience with the same emotions he had then.

Yet even while participating in these events, some of which may cause him intense emotional distress, the subject remains a lucid observer of his own situation. Another common effect has been called "humanity identification": "fantasies in which the patient [feels] love, grief, loneliness or physical suffering as though he is experiencing it as it has been felt by all people at all times and places."

These reactions continue in full force for several hours and then gradually fade. Usually within eight hours of taking LSD the subject returns to normal, although for several days or even weeks fleeting feelings of well-being, depression or anxiety occasionally recur.

All this from an invisible, tasteless, odorless speck of chemical weighing 1/200,000 of an ounce.

This sheer potency has important implications for behavioral



During all-night service, Navaho Indians smoke ceremonial cigarets and take peyote, a drug from cactus that heightens their religious visions.

science. If such a great deal can happen from such a small source, normal behavior must depend on extremely fine chemical balances. Even the most overt deviations from normalcy probably reflect quite subtle chemical changes. In one way this is a discouraging thought: neurochemists face a monumental job in trying to identify the changes and trace cause and effect. On the other hand, if this is so, the potentialities for control become vast. For if behavior can be created by specks of this, that or another chemical, it should be possible to manipulate behavior in many complex ways by pills containing properly calculated blends of such chemicals.

LSD is itself a valuable laboratory tool in attempts to discover the nature of these obscure changes. Some of the symptoms it produces resemble those in certain forms of schizophrenia; it creates what has been called a "model psychosis." By studying the model, scientists may learn much about the chemistry of spontaneous mental disorders and thus learn how to cure them. Dr. Ralph W. Gerard has contributed an aphorism—a famous one among behavioral scientists—that sums up the matter: "There can be no twisted thought without a twisted molecule." If one set of chemical reactions can twist molecules, it is reasonable to suppose that another set can untwist them—and that appropriate chemical measures at the right time can keep them from being twisted in the first place.

In fact LSD already is beginning to be used for untwisting purposes in psychotherapy, although ordinarily as an adjunct to orthodox methods. Some of its assets have already been indicated: it facilitates the "uncovering" of old, repressed memories; the "reliving" of them with all of their original emotional content; the objective understanding of them from a mature point of view. It encourages feelings of friendship and confidence ("rapport") between patient and psychiatrist, increases the patient's ability to communicate and also increases his suggestibility, thus making him more receptive to the psychiatrist's guidance. Dr. Cohen mentions also an "integrative effect" that occurs not infrequently: "During LSD therapy a point may be reached in which the patient accepts himself completely for what he is with a massive reduction in self-conflict and guilt. His existence composes into a part of a larger, more meaningful pattern. Loneliness and depression become quite incompatible with this sense of belonging. . . . Study of a number of these cases indicates that sometimes a rapid and sustained personality alteration was effected."

In regard to the hallucinogens in general, Dr. Cohen has said, "I would like to make . . . [an] unscientific statement. . . . That they sometimes produce hallucinations, delusional thinking, etc., will one day be of lesser importance. After the semantic barriers are down, these agents will help us understand something of human creativity and the supranormal aspects of perception, cognition and integral thought."

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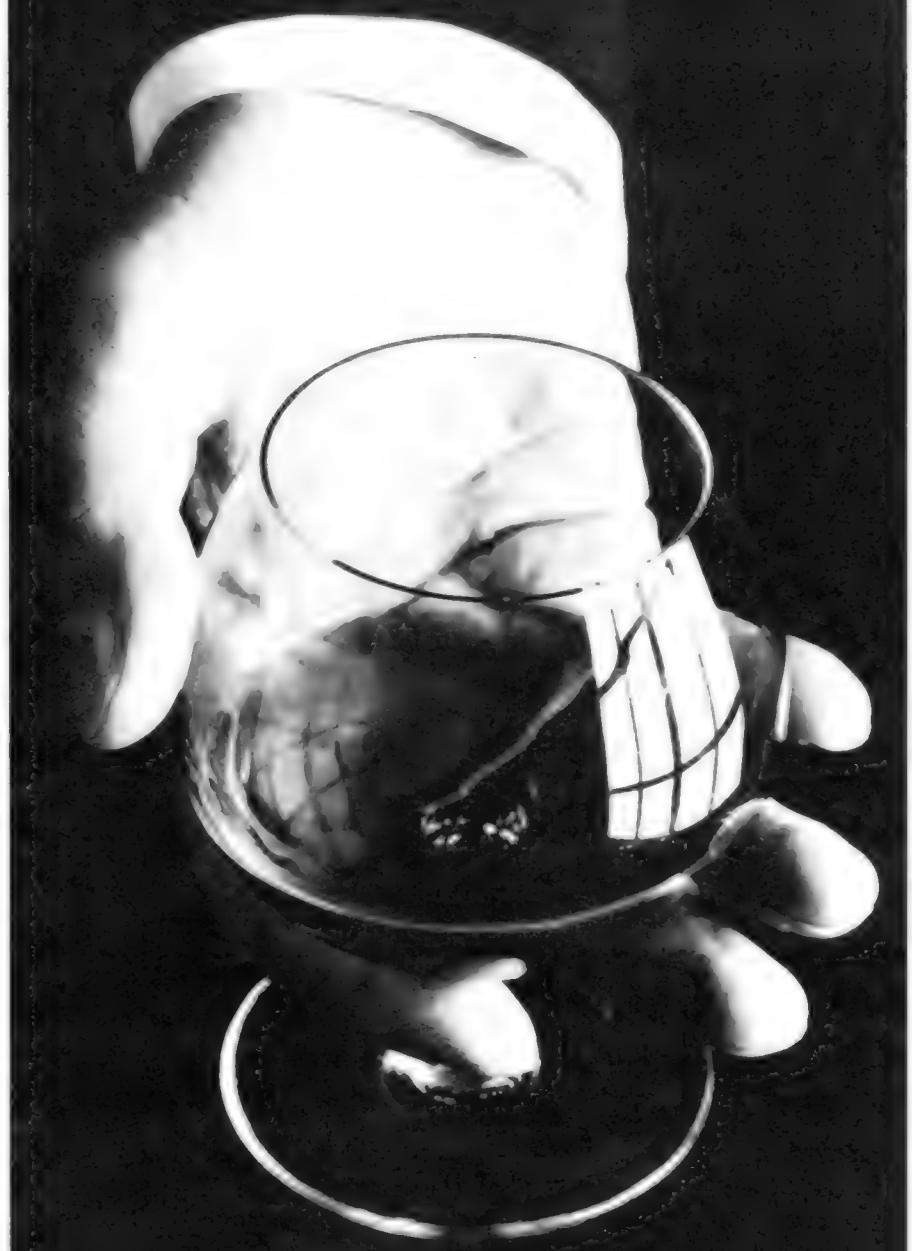

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Yet LSD and the other psychochemicals can be exceedingly dangerous if misused—a characteristic shared with the original psychochemical, alcohol, and with aspirin, penicillin and a host of other familiar valuable substances. One need only remember Dr. Hofmann's original experience to realize that LSD could be a formidable weapon, whether directed against an individual enemy or a population mass. A daily speck of it in an unsuspecting individual's morning coffee would very soon destroy him and his associates' belief in his sanity. This form of mental assassination would be nearly impossible to detect; for, curiously, within half an hour LSD is metabolized by the body and disappears almost without trace. Further, if the individual happened to be already emotionally unstable, or like Adolf Hitler a near-psychotic, this dose might cause real and irreversible insanity. It is obvious then that people with serious emotional or mental disorders should *never* be given LSD or any other hallucinogenic drug except under the most carefully supervised and controlled circumstances.

As a mass weapon, LSD has uniquely powerful properties: not only is it water soluble but the particles spread rapidly and soon permeate even a large lake or reservoir. A single pound of it in, say, New York City's or Moscow's water supply would be enough to produce a temporary "model psychosis" in the whole population, and continued doses could maintain and reinforce the mass aberration as long as needed. During that time—a time of unimaginable chaos—invading troops could occupy a city completely.

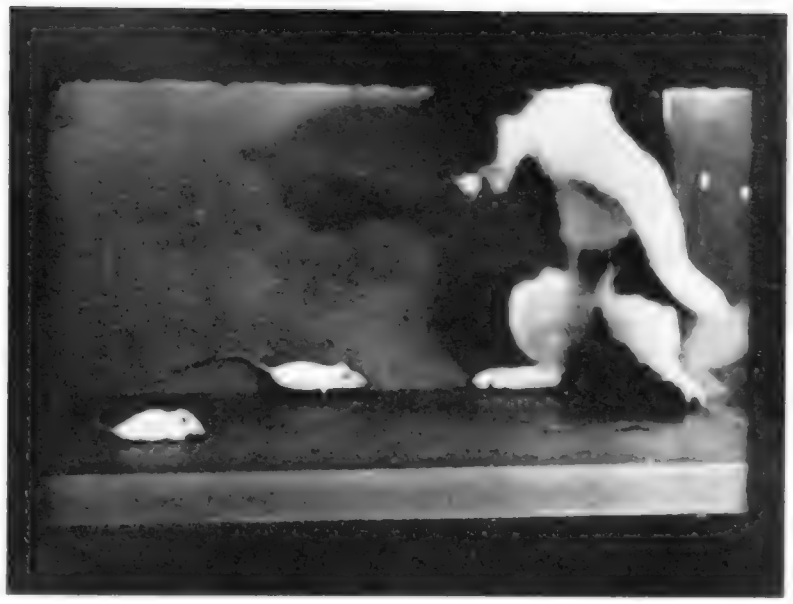
LSD, though among the most powerful of all known substances, is now only one member of a large family of drugs that interfere one way or another with the normal electrochemistry of the brain and nervous system. The Army Chemical Corps, which does most of the testing and developing for the military services, lumps them under the nice collective term, "incapacitating agents."

The things these agents can do now are many and exceedingly strange. Besides the hallucinogens there are, for instance, euphoriants. They incapacitate by making their victim so witlessly optimistic about everything that he is no good for anything. As one Army medical attendant at a chemical corps tryout on human volunteers explained, "Even the worst food, like Army food, tastes absolutely delicious to them. They'll tell you it is the best they have ever eaten." The opposite number of the euphoriants is the depressants. These drugs induce morbid gloom and prevent the victim from doing anything because he feels that nothing is worth doing. Also there are cataplexogenics. Their victim remains fully conscious, thinks normally and tries to respond to stimuli in his usual way, but he finds that his muscles don't obey. They may be rigid, flaccid or limp, but in any case they are useless and he is immobilized.

Then there are the disinhibitors. These block or weaken the controls that normally keep behavior on a fairly even keel; the victim overreacts, with excesses of talking, imagination, emotions and actions. (Alcohol is a familiar disinhibitor but a relatively mild one.) In addition there are the chronoleptogenics. They distort the sense of time and, since the victim cannot discriminate between hours and seconds, he loses track of relationships in which time is involved, becoming ineffectual and lost. And there are the confusants. They cause the victim to lose track of all relationships; the world is totally out of joint and everything in it (himself included) is uncertain, contradictory, overwhelmingly strange and perplexing.

These descriptions have been generalized, of course. In practice the effects are variable and subject to many limitations. None of the compounds is 100% effective in all circumstances, and some are only moderately effective even under the best circumstances. The important point about all of them, however, is that they do exist, they do affect the brain and they do manipulate specific aspects of behavior. The rest is a problem of product development, so to speak—of tinkering, refining and improving, adding a new twist here and there to make them better and better—or, perhaps one ought to say, worse and worse.

There are still other possibilities than those mentioned: for instance, chemicals that increase suggestibility and hence could be extremely useful in "brainwashing" prisoners of war or even (if diffused in water supplies, or perhaps in common table salt, as is done with iodine) in making whole populations receptive to propaganda. The Chemical Corps, through its liaison program with industry, receives hundreds of odd compounds monthly for testing, and there is no telling what will turn up. As Major General Marshall Stubbs, chief of the Corps, explained to the House Committee on Science and Astronautics, "The characteristics we are looking for are . . . exactly opposite to what the pharmaceutical firms want in drugs, that is, the undesirable side effects."



Effects of an incapacitating gas being tested by U.S. Army Chemical Corps send a cat recoiling with fright when two mice are let loose in its cage.

There is, however, another side of psychochemistry that is more cheerful—which, in fact, aims specifically at increasing the amount of cheerfulness and sense of well-being among humans. Even more, it aims at providing practical reasons for such feelings by enabling humans to make better use of their own capacities, become more productive and generally effective. These chemical tools are stimulants, "mood elevators" and "psychic energizers."

There is no need to dwell on the subject of stimulants. Nature has supplied scores of them, and nearly everybody uses one or more of them. The general effects are as familiar as the lift from a cup of coffee, tea or cocoa, all of which contain chemicals that stimulate the "arousal areas" of the brain. Pharmacologists long ago created a modest variety of synthetic stimulants, notably the amphetamines (the first well-known one was "Benzedrine") and drugs chemically related to them. These produce mild euphoria, wakefulness and an ability to maintain or even increase performance by their alerting action and capacity to ward off fatigue. But the results are variable and some people experience bad side effects, such as jitteriness and impaired judgment.

In general, research in stimulant drugs was modest until a few years ago when suddenly, and due ironically to the great tranquilizer boom, scientific interest flared. The tranquilizers showed that the subtle concept of "mood" could be manipulated by use of chemicals. When the excitement following the realization quieted and calm appraisal of "mood problems" began, a large truth dawned: most mood troubles involved depression.

Tranquilizers could help people who were tense and nervous and were in need of toning down, but they could only harm the far greater number of people who felt gloomy, lacking in energy, chronically "sunk." These people needed energizing rather than tranquilizing. By chance, just at the time this situation was being mulled over, a new antituberculosis drug called iproniazid was being tried out and proved to have a very peculiar side effect: the TB patients treated with the drug became gay, optimistic, zestful—so much so that it was hard to make them get enough rest or even to remember to take their medicine. Because of this and other undesirable side effects, iproniazid was discontinued as an anti-TB drug, but news of its strange euphoric effect came to Dr. Nathan S. Kline, research director of New York's huge Rockland State mental hospital. It fitted into some psychochemical studies he was making. He tried the pill on patients suffering from depression. In most cases their gloom lifted. Continued experiments proved that iproniazid, beyond a doubt, was an effective antidepressant.

Moreover, when Dr. Kline extended the experiments by giving the pill to normal people, he encountered some totally unexpected and exciting effects. These subjects felt a sharpening of their mental faculties, an intellectual keenness and ability to concentrate, and at the same time they needed far less than their usual amount of sleep. They had been given a large extra amount of what Dr. Kline decided to call "psychic energy."

Iproniazid itself is seldom used

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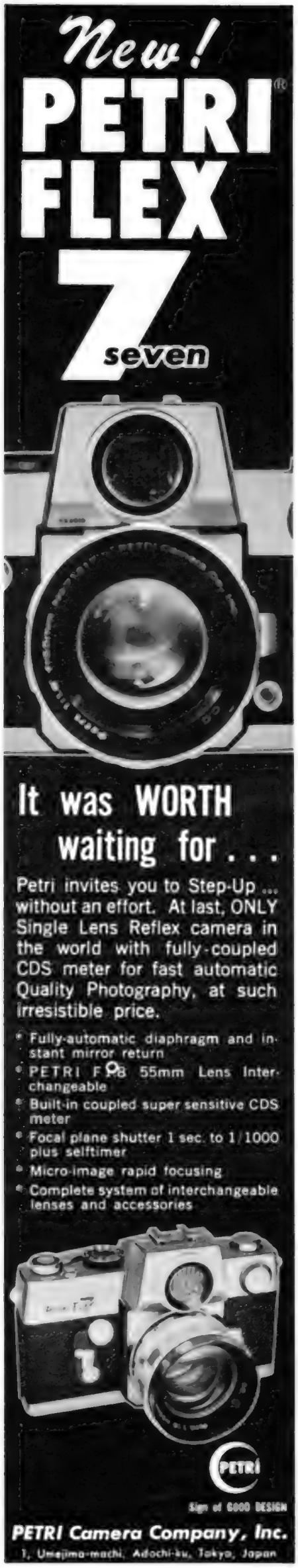


now, because of dangerous physiological side effects that sometimes occur with it, but chemical analogues of it and new compounds based on some of the same principles are today widely used in psychiatric treatment.

Now on the market, too, are several other compounds for the alleviation of ordinary run-of-the-mill gloominess and pessimism. A further development of "mood" studies was the observation that a great number of people are both anxious *and* depressed and hence need simultaneous tranquilizing and stimulating. This apparent dilemma yielded when researchers tried combining tranquilizers and antidepressants. They found that in the right combinations they did not interfere with each other but actually reinforced each other; the net effect being that with his "nerves" calmed down and his spirits uplifted, the person tended to feel well balanced.

All in all, psychochemistry and psychopharmacology have come a long way in a mere 10 years—far enough and fast enough so that Dr. Skinner, for instance, has been willing to predict: "In the not too distant future the motivational and emotional conditions of normal daily life will probably be maintained in any desired state through the use of drugs."

George Orwell's novel *1984* describes a society in which behavioral engineering has finally made possible almost complete control of human behavior—and it is in every way a dreadful place and a dreadful way to live. Is something like that society a serious possibility? There are a good many who fear so. The date chosen by Orwell was, of course, arbitrary, but because of the book, written 14 years ago, it has become a famous and ominous symbol. The babies born this year, 1963, will be 21 years old, voting age, when the real date rolls around—a topical note that perhaps makes the symbol and what it represents seem even more ominous today.

Nevertheless, while not discounting the potential dangers, any real-life "Big Brother" would face very great difficulties in getting and keeping control of the populace. The difficulties center on some crucial factors: the complexity of the human mind and the variability of the human species. Science is still a long way from understanding those subtle and intervolved processes that enter into the very highest functions of thought and feeling —the things we call "conscience," "wisdom," "judgment," "spirituality," "integrity" and, certainly not least, "independence." Somewhere, tucked away in the composite evolutionary product known as human nature, there seems to be a built-in resentment to being "controlled" and a persistent pleasure in thinking one's own thoughts—not merely despite authority but even, as it were, to spite authority. As Dostoevsky wrote: "Out of sheer ingratitude, man will play you [the controller] a dirty trick, just to prove that men are still men and not the keys of a piano. . . ."

One believes in Dostoevsky's words just as one feels the majesty of Thomas Jefferson's great cry: "I have sworn . . . eternal hostility against every form of tyranny over the mind of man." Why does one feel these things? Behavioral science is not able to say quite why, and perhaps never will be.

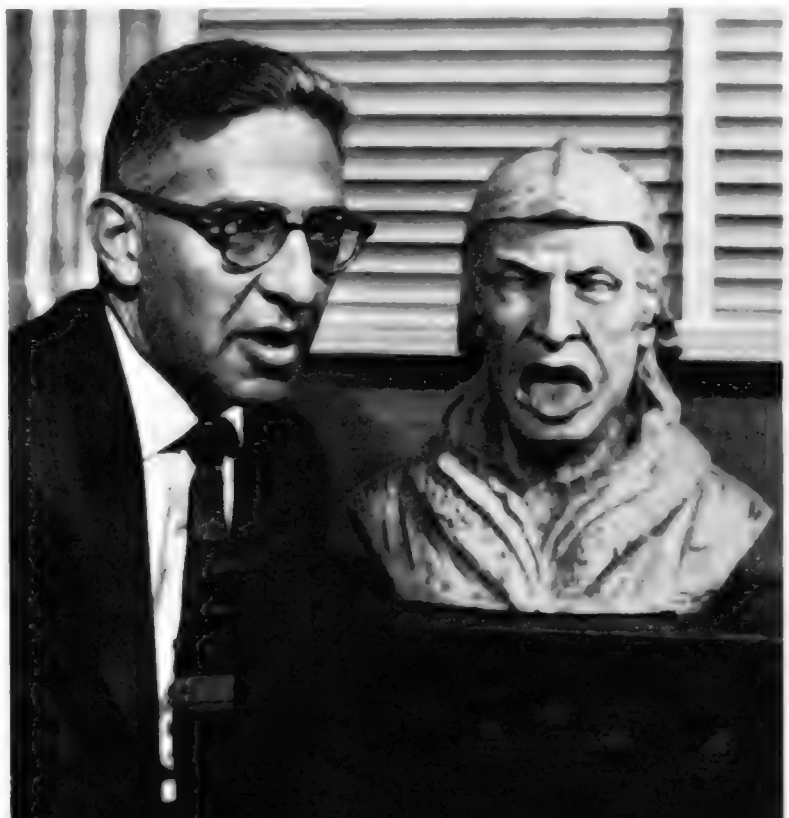
Beyond this complexity of individual man, there is the infinite variety of mankind. Not only is every individual unique, he is unique because of an almost infinite variety of reasons. Some of these reasons are located in his genetic ancestry and in the entirely fortuitous mingling of genes at the moment of conception; others, in the subsequent experiences of his embryonic life, birth, infancy, childhood and growing up; still others in unpredictable events—including things that happened only a minute or an hour ago—in the vast variety of homes and towns and nations, and for that matter in the solar system. So long as human variations exist, large areas of the human personality necessarily will remain free. "Big Brother's" dilemma might be stated, consequently: "You may control all the people some of the time; you can even control some of the people all the time; but you can't control all the people all of the time."

Could human variability itself, however, be made a subject for control? The science of genetics has long since demonstrated in plants and animals that unwanted genes can be bred out and desirable ones emphasized, until finally the reproductive process gives a highly predictable result—a creature with well-defined and stable characteristics. The same could be done with humans, thus eliminating one of the major factors that stand in the way of controlling behavior: the variations in man.

One who has suggested this is Dr. H. J. Muller, professor of zoology at Indiana University and a Nobel Prize winner. Real improvement of the human stock, he notes, requires "as a prerequisite the reorientation of human attitudes in regard to reproduction. What is needed is . . . the provision for . . . [babies] of the best genetic equipment that is available. This means a replacement of our long-ingrained proprietary attitude that takes it for granted that the children one brings up should carry one's own genetic material." Instead, the genetic material would come from "germ-cell banks" and conception would occur by means of "controlled implantation."

Such methods are technically feasible even now; the means exist. But when and if humans relinquish their proprietary attitude toward their own genetic matter, shop for babies at germ-cell banks and welcome "controlled implantation" —if such events should ever come, they will have no significance for the control of human behavior. It already will be under control.

Research psychiatrist Dr. Nathan S. Kline, with medical bust in his office, predicts psychic energizers he uses to help mentally ill will someday be given to improve the healthy.



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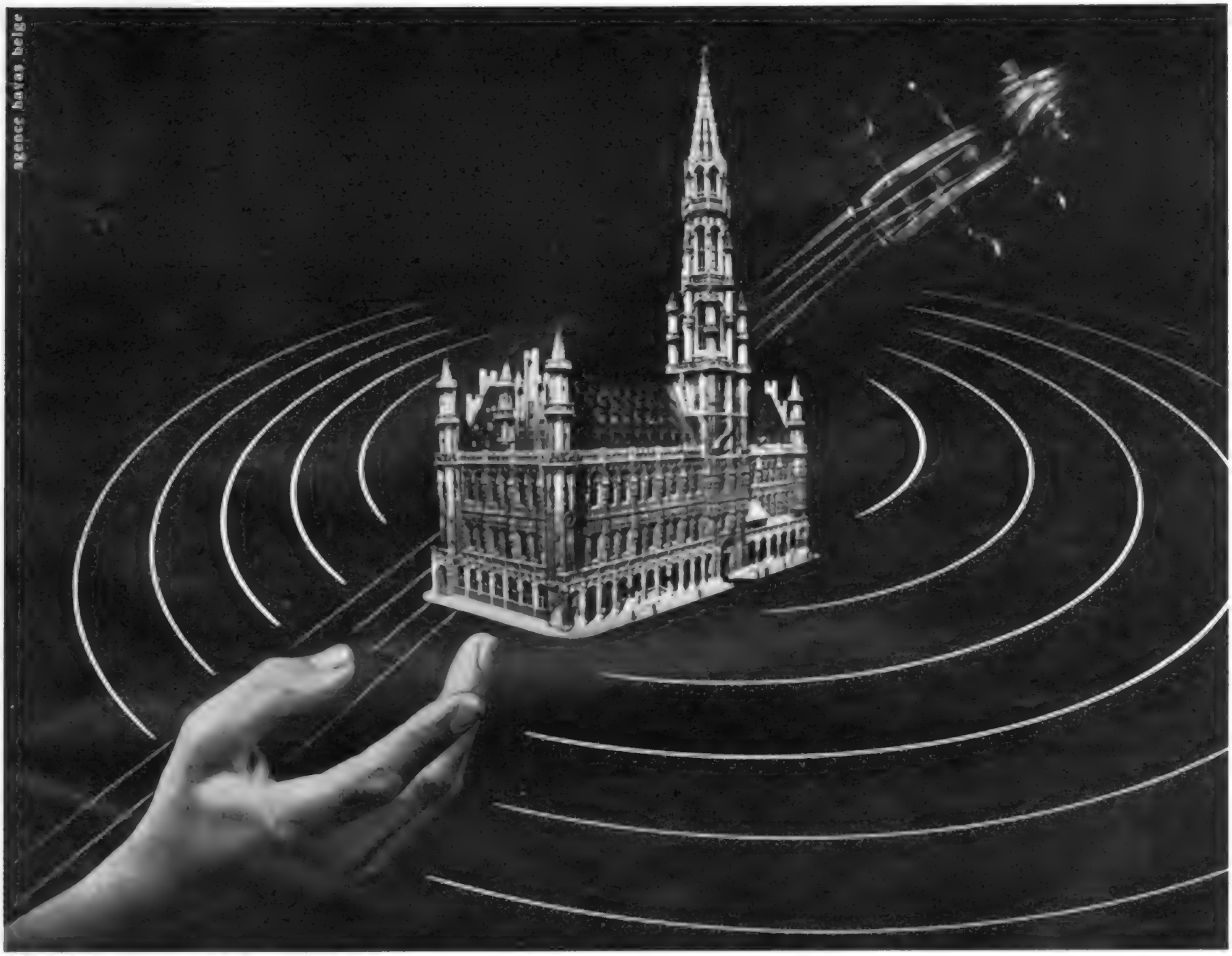

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A LIFE Guide to the Arts

To inform its very mobile readers of important events in the theater, the opera, music and the graphic arts, and of significant festivals and events rich in folklore, LIFE International presents below a list compiled from recommendations of its correspondents. Similar lists will be published from time to time. Readers planning to attend any of the listed events are advised to get in touch with booking offices before arranging travel; schedules occasionally change on short notice, and tickets for many performances are difficult to obtain.

GREAT BRITAIN

Theater: London's stage offers a rich mixture of the old and the new. An early Brecht play, *Baal*, about a poet who lives it up too much and dies ignominiously and alone, continues at the Phoenix till April 20 and perhaps a week later. Peter O'Toole has the name part and Jocelyn Herbert's "alienated" scenery is sensational. A new thriller by Robert Thomas, *Trap for a Lonely Man*, starring André Morell and Barbara Murray, has a complicated but arresting plot and is set for a long run. An evening of bawdy adventure with Lord Foppington, the fop's fop, is available in, of all places, the City itself, where the musical version of Sir John Vanbrugh's Restoration comedy, *Virtue in Danger*, holds forth at the Mermaid, the district's only theater. *Luv*, described as a "comedy about the zany gymnastics of love" by Murray Schisgal, an American playwright who prefers to have his plays premièred in London, opens April 18 at the Arts. A new production of Pirandello's *Naked*, the tragedy of a young girl who is accused of murdering a child and who dies in agony, is at the Royal Court Theatre, Sloane Square, until May 11. It stars Diane Cilento, who also did the new translation. Meanwhile, at Stratford-upon-Avon, the Royal Shakespeare Theatre is presenting *The Tempest*, *Julius Caesar* and its hit of last year, *A Comedy of Errors*, through June.

Music: At Pro Arte Society concert April 14 in Royal Festival Hall in honor of Dame Sybil Thorndike's 80th birthday, Dame Sybil plays drum and quails in Haydn's *Toy Symphony*. Actor Peter O'Toole reads from Haydn's diary. Also in Royal Festival Hall, Menuhin-Kentner-Cassado trio will play Mozart, Brahms and Beethoven April 23 and Von Karajan and the Vienna Philharmonic will play a Beethoven program April 24. A new production of *Lohengrin*, in German and featuring Regine Crespin, will be conducted by Klemperer April 16 and 19 in the Royal Opera House, Covent Garden, and a *Bohème* in Italian with Sena Jurinac of the Vienna State Opera and Alain Vanzo of the Paris Opera will be presented April 27 and 30 and May 2 and 4. Britain's first stage performance of Prokofiev's *The Love for Three Oranges* in English premières April 24 in the Sadler's Wells Theatre, with repeats April 26 and 30 and May 2 and 3.

Art: 350 paintings collected by Royal Academician Edward Le Bas, illustrating the painter's own choice of the art of his time, are on display at the Royal Academy through April 28. Sickert, Picasso, Bonnard, Utrillo, Vuillard, Soutine, Matisse, Braque, Léger, Klee and others are included. A one-month show of new works by Ben Nicholson opens April 24 at the New London Gallery, Bond St., and 50 linoleum cuts by Picasso have their première April 30 at the Hanover. A show of large abstracts by New Zealander John Drawbridge, who has done a vast mural in soon-to-be-opened New Zealand House, runs through April 19 at Redfern Gallery. It is followed April 23 by showings of impressionistic landscapes by Chinese artist Cheong Soo Pieng and the Duchess of Leeds and some portraits of famous people by the Duchess. An extensive retrospective show of Russian-born painter Serge Poliakoff, who is now living in Paris, opens April 19 at the Whitechapel Art Gallery. It will remain there for one month.

FRANCE

Theater: The International Theater Festival continues its tenth season with the Odetta Troupe of the U.S.A. presenting American Negro folklore in song April 15, 16 and 17 at the Théâtre Récamier, and the Stuttgart Opera giving *Oedipe Roi* by Carl Orff April 24 and 26 and Wolfgang Fortner's *Noces de Sang* (text by Garcia Lorca) April 25 and 27 at the Sarah Bernhardt. *Les Parachutistes*, the first play by Goncourt winner Jean Cau, spreads the seven bloody, brutal years of the Algerian war over seven acts at the Studio des Champs-Elysées, with several gripping scenes. At the Théâtre de Paris *La Grande Oreille*, a hit tragicomedy by P. A. Bréal, describes mishaps befalling an ambitious but naive *bourgeois* who finds himself involved in a war of religious intolerance. Norman Krasna's *Un Dimanche à New York*, Robert Dhéry in the side-splitting semi-burlesque *La Grosse Valse*, the early, romantic Pirandello work *Eve et Line* and Françoise Sagan's *La Robe Mauve de Valentine*, with Danielle Darrieux, continue their runs.

Music: Hungarian Quartet plays three concerts at Salle Gaveau April 19, 22, 23. Berlin Philharmonic under Von Karajan plays three Brahms concerts at Théâtre des Champs-Elysées: April 26 with Francescatti, violin; 27 without soloist and 29 with Backhaus, piano. Wilhelm Kempff plays two recitals at Salle Pleyel April 30, May 3.

Art: George Braque's jewelry will be shown for the first time at the Musée des Arts Décoratifs through April 22 and a Vasarely retrospective, mostly panels of brilliant geometric patterns, is there through April 30. A Kandinsky exhibition opens April 23 at the Musée d'Art Moderne and will continue through June. A retrospective of Giovanni Boldini at the Musée Jacquemart-André (250 works, mainly portraits and landscapes) recalls the lovely life of the late 19th and early 20th centuries. The Louvre will open a centennial commemorative exhibition of Delacroix May 10, to run through September, and his studio and apartment on Place Furstenberg are already open to the public. Treasures of Bulgarian art, many seen for the first time outside Bulgaria, continue on exhibit at the Galerie Charpentier through April.

GERMANY

Art: A rare look at modern Polish art is offered at Germany's first postwar representative Polish art show, at Karlsruhe's Kunstverein through May 12. More than 150 paintings cover the period from the turn of the century to the present. The Haus der Kunst in Munich is exhibiting work of 40 contemporary French artists, including Picasso, Buffet, Chagall and Braque, through May 12.

Music: Stuttgarter Kammerorchester under Münchinger performs Pergolesi, Gluck, Mozart and Schubert in Munich Residenz's Hercules Hall April 22.

ITALY

Music: Rome Opera performs *Tosca* April 16, 21. Venice is host to the 26th International Festival of Music, with a generous helping of contemporary music scheduled for La Fenice theater: *Garden Without Walls*, electronic tapes by Henri Pousseur April 18; an all-Schoenberg program April 21; the world première of Yannis Xenakis's *Strategie*, symphonic concerto for two orchestras, April 23, and Pierre Boulez's *Terza Sonata per Pianoforte* April 25.

Art: The National Exhibit of Contemporary Art is on in Florence's Palazzo Strozzi through April 28, featuring painting and sculpture.

Folklore: During the singing of *Gloria* in the Piazza del Duomo in Florence Easter Sunday, April 14, a dove sets fire to a cart made of explosives. The blast recalls the victorious return from the first Crusade. A good explosion augurs well for the year's harvest. In Palermo, Easter is celebrated in Byzantine rites, with women in Oriental costumes.

SWITZERLAND

Music: Munich Philharmonic under Rieger (Zara Nelsova, soloist) performs Wagner, Dvořák, Brahms in Basel April 16, continues to Bern April 17, Zurich April 18, Lausanne April 19. Von Karajan and Berlin Philharmonic play in Geneva April 30. The Heinrich Schutz Festival takes place in Zurich the entire week following Easter, including German music of the early Baroque period and concluding with *Golgotha* Easter Oratorio by Geneva composer Frank Martin.

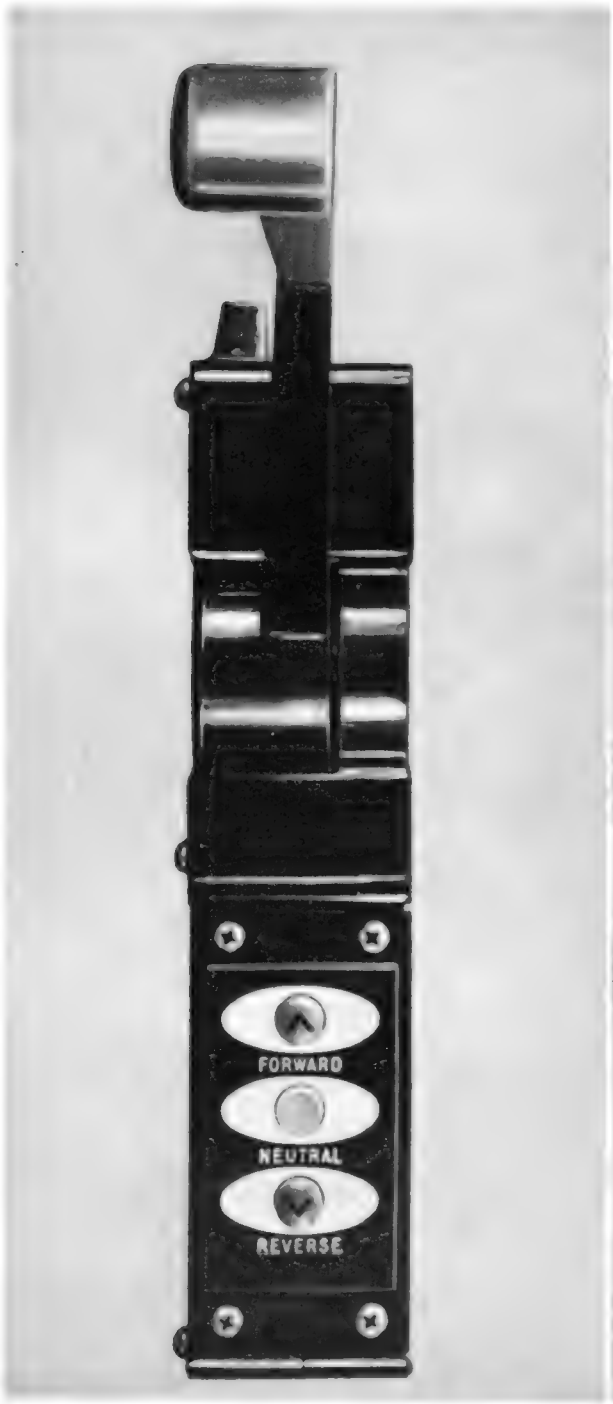
Art: Zurich's Kunsthaus is showing a Max Ernst retrospective through April 27.

Folklore: The Zurich spring festival known as *Six O'Clock Chimes* is celebrated April 21–22. Sunday hundreds of children stroll through town; Monday afternoon grownups stage guild procession decked in medieval finery. At 6 p.m. a giant *böög*, a monster representing winter hardships, is set afire. Guild groups roam through town all night with bands and lanterns.

NETHERLANDS

Theater: C. P. Snow's *The Affair* and Arthur Kopit's *Oh Dad, Poor Dad . . .* are at The Hague Theater through April.

Art: The Hague Municipal Museum is showing color lithographs for Karel Appel's book, *A Beast-Drawn Man*, and George Braque's color etchings, *Ordre des Oiseaux*.



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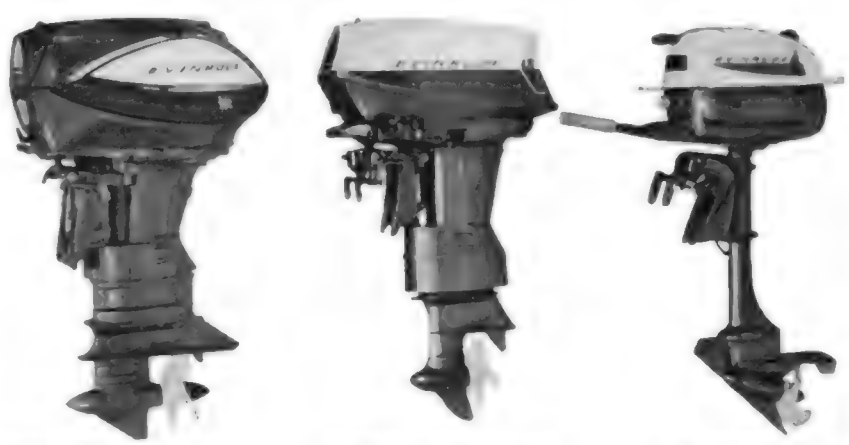

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Westerner's Loving

One of the most perceptive observers currently living in the Orient is an Englishman best known for his poems about the English countryside—Poet Edmund Blunden, who has been a professor at the University of Hong Kong for the past ten years. With the same lyrical melody he once used to describe the pastoral beauties of Britain, Blunden now captures—and translates—the spirit of Japan and Hong Kong.

His poems are published in a new book, *A Hong Kong House* (Collins, London). In an introductory note, Blunden the busy teacher explains that he has had "to compose my pieces 'in the intervals of business.' " But, as the samples on these two pages show, Blunden the poet shines clearly through.

Almost from the time of his first poems, which won the Hawthornden Prize in 1922, Edmund Blunden has been compared to Wordsworth. But to a smaller, privileged group he is fondly remembered as a brilliant scholar and exciting teacher. His biographies of Shelley, Hardy and Leigh Hunt are warm and lively evocations of the men and their times. And, as his former students—at Oxford, at Tokyo Uni-

A HONG KONG HOUSE

"And now a dove and now a dragon-fly
Came to the garden; sometimes as we sat
Outdoors in twilight noiseless owl and bat
Flew shadowily by.
It was no garden,—so adust, red-dry
The rock-drift soil was, no kind root or sweet
Scent-subtle flower would house there, but I own
At certain seasons, burning bright,
Full-blown,
Some trumpet-purple blooms blazed at the sun's huge light."

And then? tell more.
"The handy lizard and quite nimble toad
Had courage often to explore
Our large abode.
The infant lizard whipped across the wall
To his own objects; how to slide like him
Along the upright plane and never fall,
Ascribe to Eastern whim.
The winged ants flocked to our lamp, and shed
Their petally wings, and walked and crept instead.

"The palm-tree-top soared into the golden blue
And soaring skyward drew
Its straight stem etched with many rings,
And one broad holm-like tree whose name I never knew
Was decked through all its branches with broidering leaves
Of pattern-loving creepers; fine warblings
And gong-notes thence were sounded at our eaves
By clever birds one very seldom spied,
Except when they, of one tree tired,
Into another new-desired,
Over the lawn and playthings chose to glide."

THE SLEEPING AMAH

"The East has all the time, the West has none;"
But I know not what I say.
Others must come this way
To tease this riddle out, if it be one,
Better or not—yet who
Will find me what I thought I knew?

There she still sits, unknown to me else, in her chair
After the long day's labour, sitting there
Tired out, her sewing not yet done,
A child, a mother, the wise face now begun.
Like me she falls asleep
Quietly moored upon the warm time-deep.

TOKYO LAWN

"I'm a starling."
Are you?
"Yes, a starling." So: you are very much like.
On the turf at Lord's I have seen you strike
That intelligent beak among the roots—
They couldn't bar you.
The same demeanour, the same pursuits,
Even if you sport a feather or two
Which the crowd at Lord's might mildly boo,
Distinguish you from the hawks or coots.

Good luck to you then, you feathered scout,
But what is it your shrewd mind finds out?
In this bleached brown depressing stretch
Of Tokyo lawn, my wildest fetch
Gets nowhere.
"I'm a starling."
True;
And the one I knew
Where the green grass really sprang for you.

SUMMER STORM IN JAPANESE HILLS

This is the forecast storm, the rage
Of nature; mountain voices rise;
The lakes, it seems, would join the skies,
The winds begin an enterprise
Of scooping caves. This last brief stage,
Friend, of our journey! if our eyes
Can pierce this gray mass hissing past,
Or this strong road become not quite
A cataract shooting steep to night;
Or these swift wheels be just not whirled
As plaything chariots of the blast
Over the wan-hued tempest world
Where rock and tree like spindrift hurled
Will know as much as we at last.

© EDMUND BLUNDEN 1962

Lyrics to the East

versity and at Hong Kong—testified when he celebrated his 65th birthday (*poem bottom right*), Blunden has been an inspiration to lovers of poetry for two generations. Some of his students have gone on to become renowned poets in their own right (*next page*). Some have remained content merely with Blunden's enrichment of their lives. Most of them would agree that Edmund Blunden has helped them to appreciate what Blunden's own Percy Shelley meant when he said: "Poetry is the record of the best and happiest moments of the happiest and best minds."

THE STONE GARDEN (KYOTO)

Signs and wonders fill
The air, the earth, and ocean
With tales of future triumph still,
And mansoul in commotion

Let me like many others pause
By these mysterious forms of stone,
Which seem to speak eternal laws,
Truths which must not become unknown
At any point in time and space,
In boundless tides of startling hour and place,
Truths modest as these ancient quiet things
In this calm close (mere stones and sand it seems).
Elsewhere what fantasy of brief wonder springs
Here see the soul which knows no wild extremes.

VIEW FROM THE UNIVERSITY OF HONG KONG

How like a large and cheerful family show
Those ships in the harbour below,
In the roomy friendly household of the port,
Venturers of various build and sort,
But all the progeny of old Land and Sea.
In their diversity how these boats agree!
Some, ponderous uncles or rich round aunts, sit there
Each as in a stately elbow-chair,
Majestic and much-travelled, giving out
The law of long experience, no doubt,
But nobody listens much; yet on their state
Several intelligent nimble nephews wait,
Nieces perhaps, and briskly fetch and bring
This, that and the other thing,
As if to a queen, as if to a king.

But still it is liberty-hall; and look at those
Other water-children, how each comes and goes
With familiar freedom, some trim and ragged some,
Each in the confident way that says "This is my home."

"I'm a-fishing today," sings that many-patched sailor,
And "Who's for the ferry?" one fresh from the tailor;
A tiny one pilots itself through the throng
Like an infant that makes his first journey along
On hands, knees and toes and does famously well.
Then the swift child shoots past, as when all can foretell
(Even uncles and grandparents seemingly dozing)
That this in school races will seldom be losing.
Thus gently all these from the greatest to least
Like a free lively family merrily all
Are arriving and off again, West or East,
In the blue-china hall.

THREEFOLD SCREEN

I

Merrily under the trees they ran
Hunting for mushrooms; every day
The children's endless adventure began—
But Time lives in those woods, they say

II

Tell me who can if Memory most will keep
The splendour of that snowy mountain height,
Or noon's just-murmuring ocean half asleep,
Or this black butterfly and lily white.

III

An enchanter called this dream-isle from
The summer wave;
And in a long-forgotten grave
He sleeps; the dream above the foam
Stands, rock and grove, until he come.

THE TEA-HOUSE

When on the mountain side we saw the tea-house
Overlooking so many tilled green lowlands,
We wrote no poems; all were written for us,
And in the night there was no need of writing.
The picture in the bedroom held the secret
Of all our journey, springs insisted nightlong
On telling us the magic of the mountains.

Illustrations for LIFE International
by TADAAKI KUWAYAMA

TO THE COMPANY MET FOR MY BIRTHDAY, 1961

When I was thirty-five, I think
I wrote a rhyme or two to say
"Time I went home." And fate said, stay,
Thirty years back, and *procul hinc*

(Latin?), old Oxford's far from here.
How time has flown. Yet "here I be,"
In village English, and "all we"
Assemble in this after year.

But what is time? some time we'll know,
And every day we count the clock
And wish its two hands would not mock,
Sometimes too swift, sometimes too slow.

It is not Prof. B. talking now,
But time's old traveller. Could he find
Expression for his heart and mind
As kind as you, sweet friends are kind . . .
All he can do is, bless, and bow.

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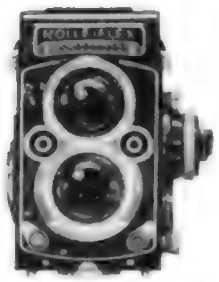

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'To Be a Poet, Be a Man'

Poet Blunden is also famous for his prose work *Undertones of War*, one of the most powerful descriptions ever written of World War I. War taught Blunden much about humanity and the poet's role, and Blunden in turn taught his students these hard-earned lessons of life. One of his students was a young Iowan named Paul Engle, who returned to the U.S. and achieved his own fame for an evocative ability to capture in his poetry the vitality of the American idiom. On Blunden's 65th birthday Engle thought back over those stimulating months as Blunden's student, and wrote a poetic tribute, a part of which appears below. The Blunden quotations are from his *Undertones of War*

TO EDMUND BLUNDEN ON HIS 65TH BIRTHDAY

Soldier, teacher, scholar, man,
White-flanneled cricketer who ran
Wicket to wicket with his bat
Should any life be more than that?

Yes—the poet, whom we blame
For giving joy and grief a name,
For looking up at the bold sky
Whose sun burns through the living eye,
For looking down where song has shown
The cricket under his cool stone,
For adding to each simple word
The wing and warble of a bird,
For making silences so clear
And absolute that we can hear
Time screaming in the frightened ear

He taught how friendship first began
To be a friend, first be a man
I learned all that a student can
To be a poet, be a man
I learned our life has but one plan
To praise the human, be a man
Blunden, I cry, with you began
My knowledge of 'What is a man?'

Behind the limestone walls of Merton, grey
Out of the earth, twice-greyed with fog and smoke,
I brought my essay to him—how Donne broke
Rhetoric with live speech, as our own day

Stone stairway like a purgatorial mount,
Twisting as a drunken street in London,
I climbed up to the room of Edmund Blunden
Uneasy Iowan, not much account

Eyes met me, burning through the morning mist
Shy creature, burrowing the autumn gloom,
Who seemed to haunt, rather than hold, that room
Warm hand that clenched into a wiry fist

Short, slight, he seemed assaulted by a chair
But as he waited, such a radiance beamed
From his intensity of face, it seemed
An animated star were rising there

"Written your essay? Good. Then we won't read it
Late yesterday I saw you playing cricket
Now let's suppose these volumes are a wicket
Just watch. Here's some advice. I'm sure you'll need it"

He showed me how to swing the bat, not round
Like baseball, but flat-surfaced; how to meet
A ball thrown stiff-arm just before the feet
Twisting as it spun up from the green ground

Then turned and took from the ritual fireplace
The smoking pot, the smokey tea inside
Instantly he was glowing friend, shrewd guide
His face a sun at which I warmed my face

PROUD STUDENT of Blunden, Paul Engle is now a celebrated American poet and the stimulating teacher of a famous creative writing course at the University of Iowa. Engle has recently gone on a world tour, lecturing on American writing and, not incidentally, having a reunion with Poet Blunden at his Hong Kong house.

One day I met him. Sun had scratched
The Oriel tower with gold.
He shook my hand. His hand was shaking
With that May morning cold.

In all that radiance of light
We stood, and shook with chill.
At Magdalen the choir boys
Were singing sweet and shrill.

"Last First-of-May at Prattle Wood
I heard the larks in air.
But could not see them, high above
The grey mist rising there."

He smiled, and such a human warmth
Rose on that bitter day,
It was as if we two had met
On earth's first living day.

Now when the world's hot atoms threaten
Another age of ice,
I keep one simple wish: let that
Encounter happen twice,

Let one more shining May-Day morning
Bring me there to meet
Edmund Blunden shivering
Along an Oxford street.

The guns went off, and he went off to fight,
Too frail, too brave, too gentle and too young.
Found terror had a steel taste on the tongue,
The honest sun was wicked—it brought light.
A blue-coat boy, he learned that the blue air
Could darken with the sniper's deadly eye.
A soldier's way of living was to die.
Yet took a cheerful view of his despair,

Respected each man's fear, but honored more
The conquest of it. Knew gun, shell, gas, knife.
Caught in the open by the rocket's scar,
He knew the ordeal of the frozen wait,
Found death a landscape where he searched his life,
And hated most of all the shout for hate.

By Kidlington to Hampton Gay
We walked one glittering spring day.
Pointing, he said, "That forest could
Have been the slope of Thiepval Wood
Above the Somme. My men were there,
But vanished into empty air,
When the great guns destroyed that land."

The bloody weight of that attack
Still bore down on his narrow back,
But then he smiled. I saw that black
Memory lift like a barrage.
Hard ground, high hill, were a mirage,
Old war was his reality.
Softly he turned and said to me:

I "will be going over the ground again, until that
hour when agony's clawed face softens into the smilingness
of a young spring day."

NEWPORT

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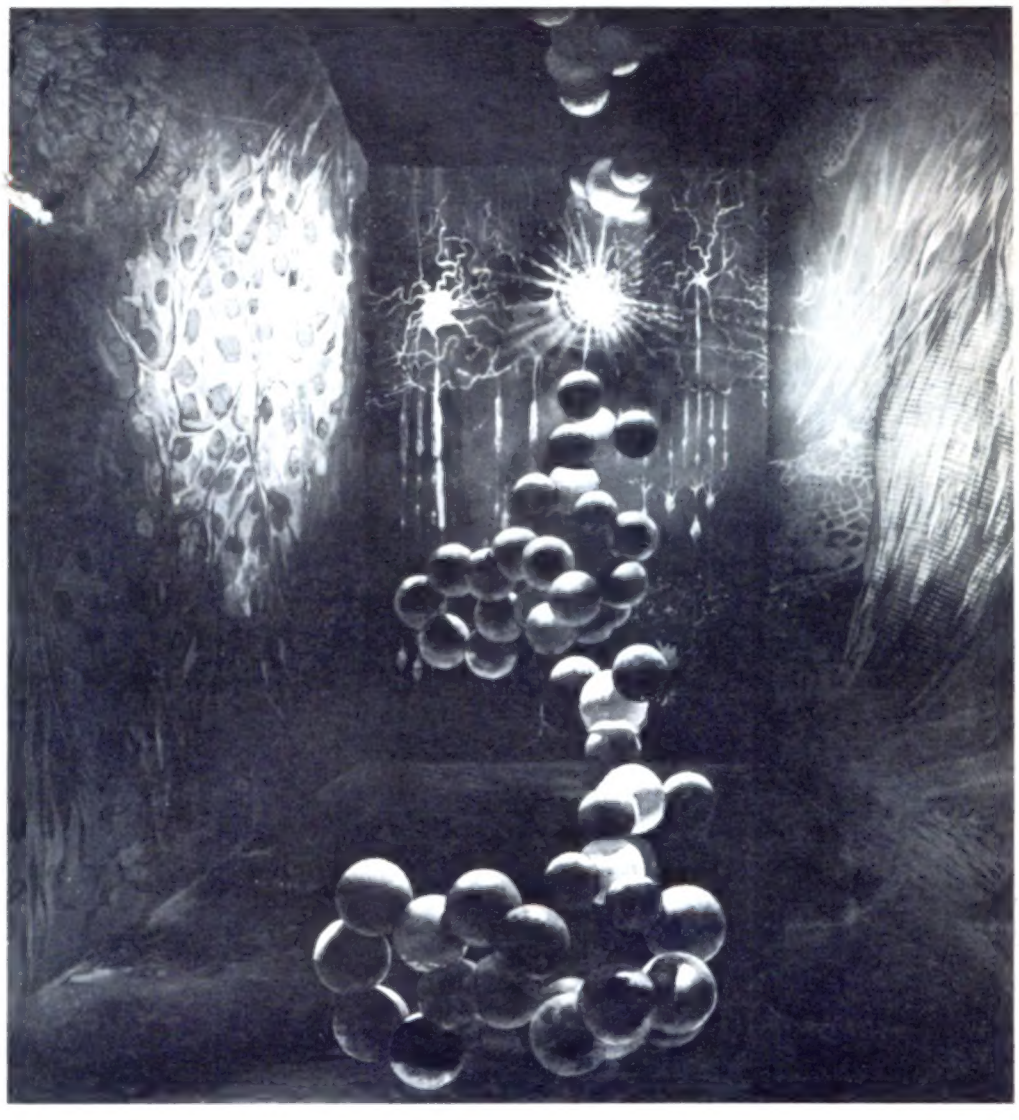
IN THE NEXT ISSUE OF LIFE INTERNATIONAL

THE HUMAN BODY

Part III

The near-miracle by which the body converts food into energy will be described in a 17-page essay. Specially commissioned paintings by Arthur Lidov will make comprehensible, as in the much-discussed two preceding parts of the series on the human body, the complicated processes involved as the body breaks food down into amino acids, fatty acids and sugars and produces from them the energy molecule ATP (*right*). Through pictures and finely wrought text, you will be taken inside a human cell, will see ATP manufactured, will watch it release its energy into nerves and muscles.



ALSO IN THE NEXT ISSUE:

THE WORLD BANK

A report by James Morris

SUPERB SERVED CHILLED WITH YOUR AFTER-DINNER COFFEE

CHERRY HEERING FRAPPE: Pour 2 oz. Cherry Heering Liqueur over shaved ice in a cocktail glass. Serve with short straws.

CHERRY HEERING JUBILEE: Pour ½ oz. of Denmark's Liqueur Delight over vanilla ice cream. Top with Bing cherry.

FRUIT DELICE: Prepare your favorite fruit cup recipe. Chill. Spoon into dessert cups. Top each portion with ½ oz. of Cherry Heering.

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Another adventure in one of the 87 lands where Canadian Club is "The Best In The House"

In Turkey, they almost cooked my goose with their Ring-of-Fire leap

1. "It was too late to back out," writes Chuck Kern, a friend of Canadian Club, "but as the flames crackled around the blazing ring I had to jump through, I called myself seven kinds of idiot. In Turkey, only top athletes from colleges and military academies dare the 'ring-of-fire' leap but I let my friends kid me into making the try. It seemed simple enough—just a running jump ending with a dive through a hoop. But what a difference when they pour on gasoline and set the ring on fire!

2. "The flames formed a searing curtain about my target. Miss the centre and more than my pride would suffer. I backed off . . . then sprinted down the path. With every ounce of strength I had, I leaped headfirst at the ring.

3. "I aimed for the centre but I jumped too high. A flame licked my shirt and I was on fire! Even before my feet touched the ground, my Turkish friends were on me, tearing off the flaming shirt.

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